SLV-595HF/696HF

RMT-V102D/V112A

SERVICE MANUAL

US Model
Canadian Model

740

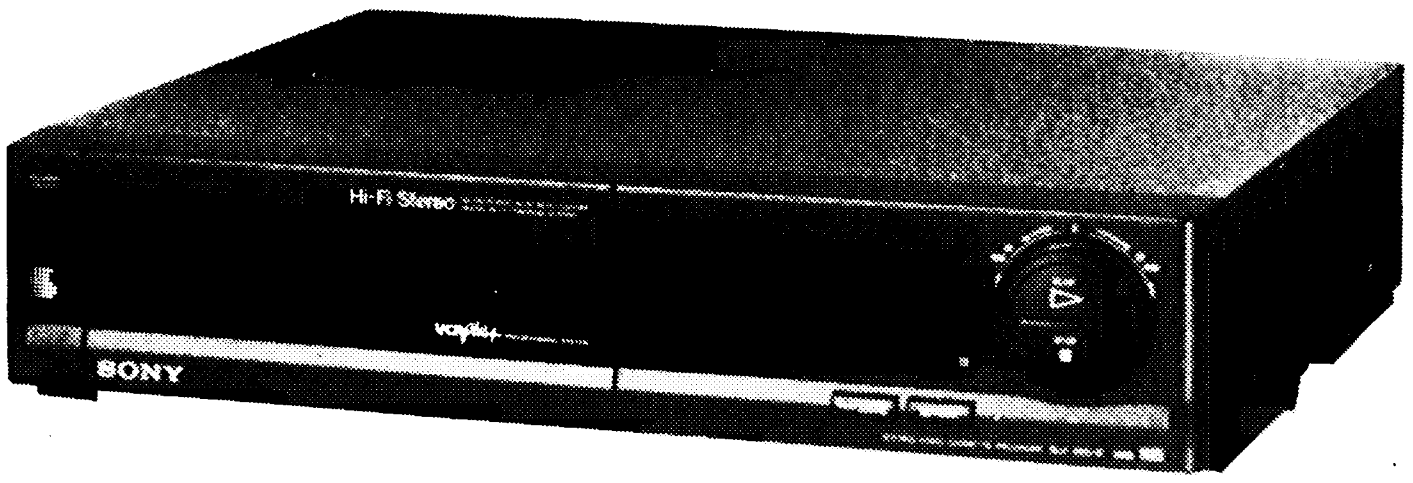

Photo : SLV-595HF

·Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT II for MECHANICAL ADJUSTMENTS. (9-972-816-11)

VHS Hi-Fi

SPECIFICATIONS

System

Format	VHS NTSC standard
Video Recording System	Rotary two-head helical scanning FM system.
Video Signal	
Tape Speed	SP: 33.35 mm/s (1 3/8 inches/s) EP: 11.11 mm/s (7/16 inches/s) LP: 16.67 mm/s (11/16 inches/s) Playback only
Maximum recording/ playback time	9 h in EP mode (with T-180 tape)
Fast-forward and rewind time	Approx. 4 min. 30 s (with T-120 tape)
High-speed rewind time	Approx. 3 min. (with T-120 tape)

Tuner Section

Channel Coverage	VHF channels 2 to 13 UHF channels 14 to 69 CATV channel A-8 to A-1, A to W, W+1 to W+84
Antenna	75-ohm antenna terminal for VHF/UHF

Inputs and Outputs

LINE IN 1 and 2	VIDEO IN (phono jack) (1 each) Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO IN (phono jack) (2 each) Input level: -7.5 dBs (0 dBs = 0.775 Vrms) Input impedance: more than 47 kilohms
LINE OUT	VIDEO OUT (phono jack) (1) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO OUT (phono jack) (2) Standard output: -7.5 dBs at load impedance 47 kilohms Output impedance: less than 10 kilohms
CONTROL S IN	Mini jack (1)

Timer Section

Clock	Quartz locked
Time Indication	12-hour cycle
Timer Setting	Only for recording 8 program in one month at max.
Power back-up	Built-in self-charging capacitor Back-up duration: Up to three hours at one time

General

Power requirements	120 V AC, 60 Hz
Power consumption	25 W (max.) 6 W (in standby condition)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Dimensions	430 x 100 x 395 mm (w/h/d) (17 x 4 x 15 3/4 inches)
Weight	6.0 kg (15 lb.)

–Continued on next page–

MICROFILM

VIDEO CASSETTE RECORDER

SONY®

Wireless Commander RMT-V102D (for SLV-595HF)/ V112A (for SLV-696HF)

Remote control system	Infrared control
Command mode	VTR 1/2/3 switchable
Power requirements	3 V DC, 2 size AA batteries (IEC designation R6)

Accessories Supplied

Wireless Commander RMT-V102D (for SLV-595HF)/V112A (for SLV-696HF)	(1)
Size AA (R6) batteries	(2)
75-ohm coaxial cable with F-type connectors	(1)
External antenna connector	(1)
AC power cord	(1)
Audio/video connecting cable (3 phono to 3 phono)	(1)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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SERVICE NOTE

1. RETURNING PINCH ROLLER, GUIDE ROLLER AND ELEVATOR CAM TO STOP CONDITION

1) Remove the bottom panel.
2) Turn the worm gear Ⓐ of the cam motor, located at lower of the MD, to the arrow direction Ⓑ by finger.

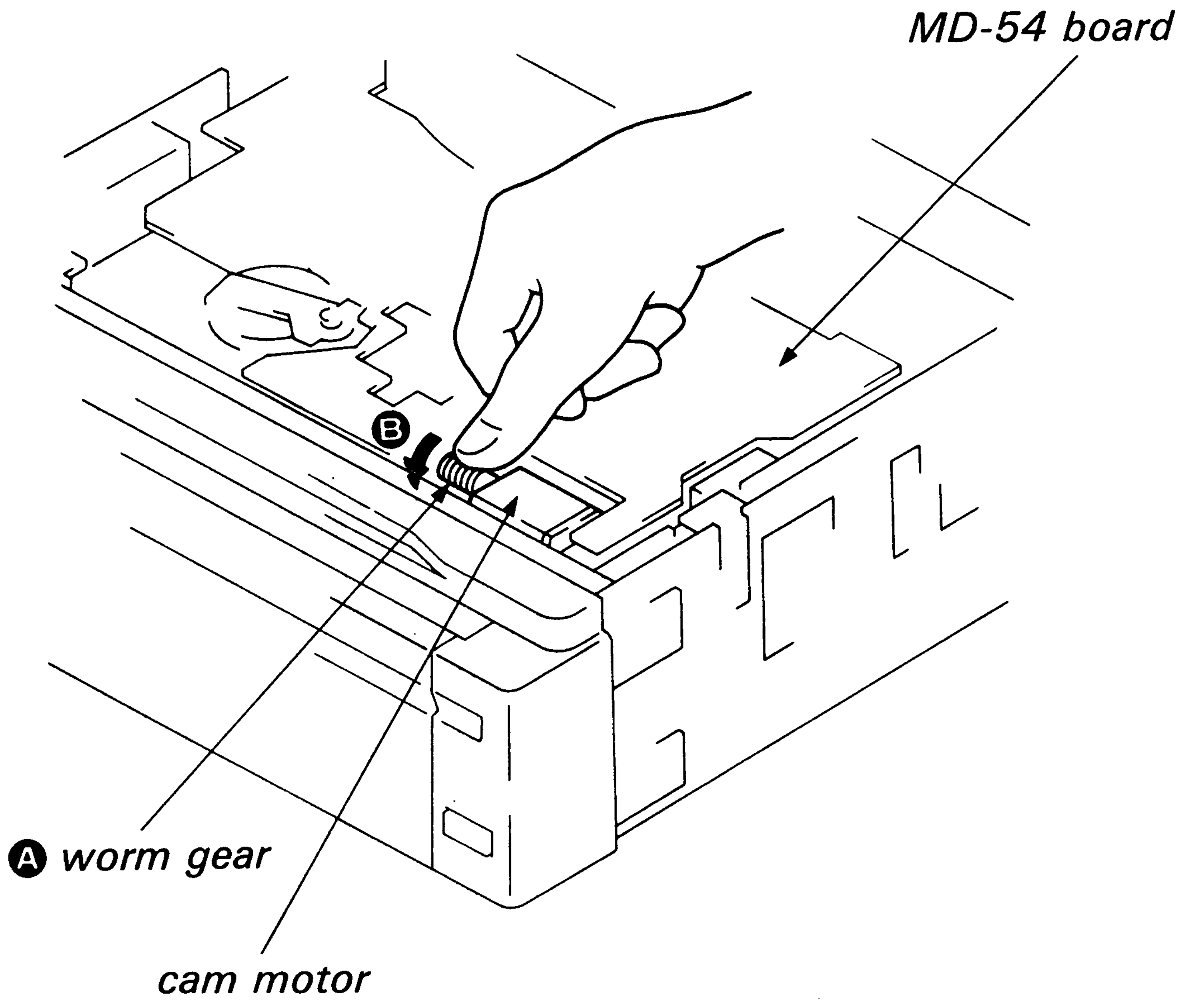

MD-54 board
Ⓑ
Ⓐ worm gear
cam motor

Fig. 1.

2. WINDING TAPE TO CASSETTE HALF

Turn the fly wheel Ⓐ of the capstan motor to the arrow direction Ⓑ by finger, then the cassette tape will be wound to the cassette half.

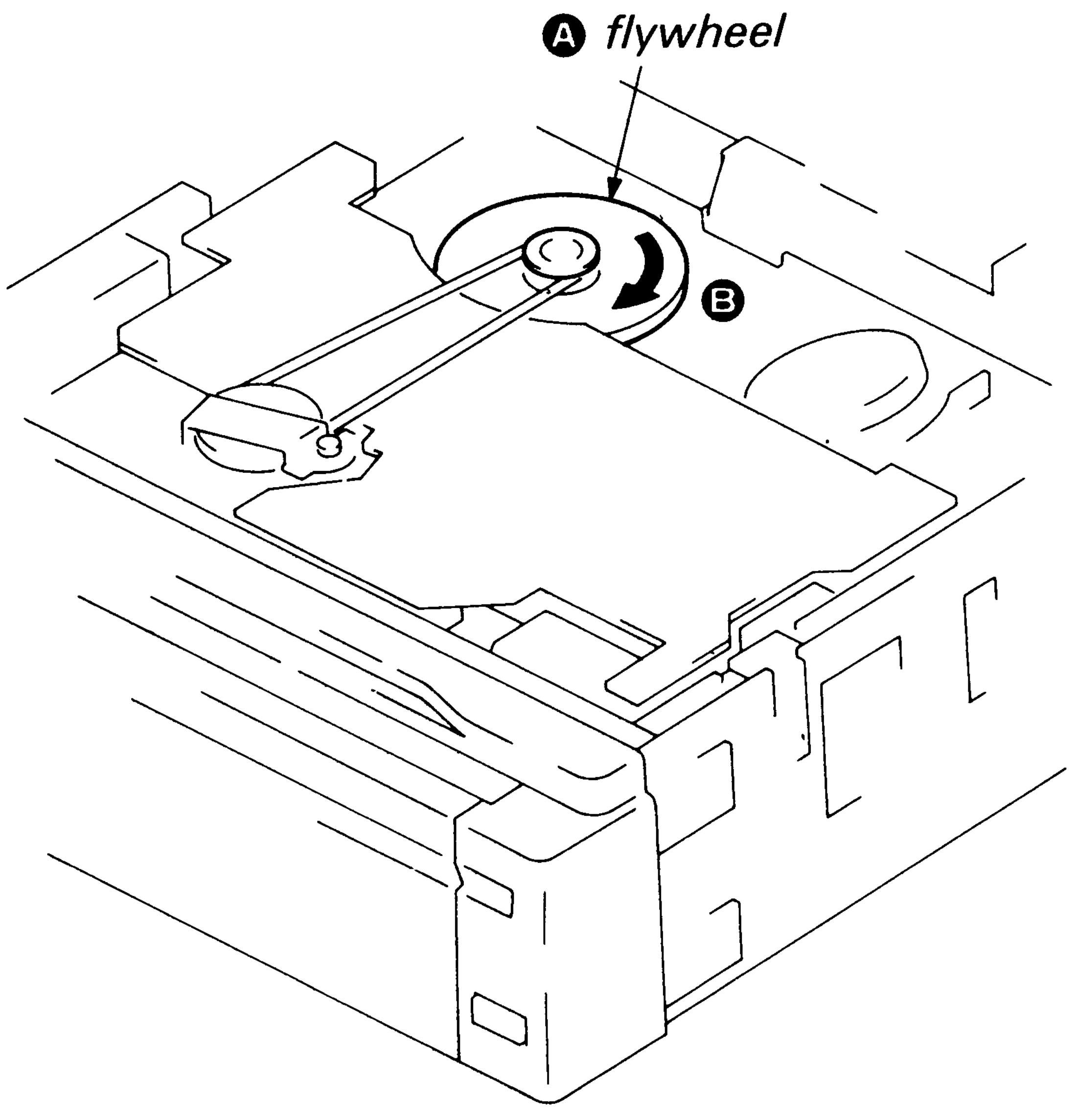


Fig. 2.

3. TAKING OUT CASSETTE WHEN UNIT IS DEFECTIVE WITH CASSETTE IN

1) Remove the upper case.
2) Turn the worm gear Ⓐ of the FL cassette compartment motor to the arrow direction Ⓑ by finger.

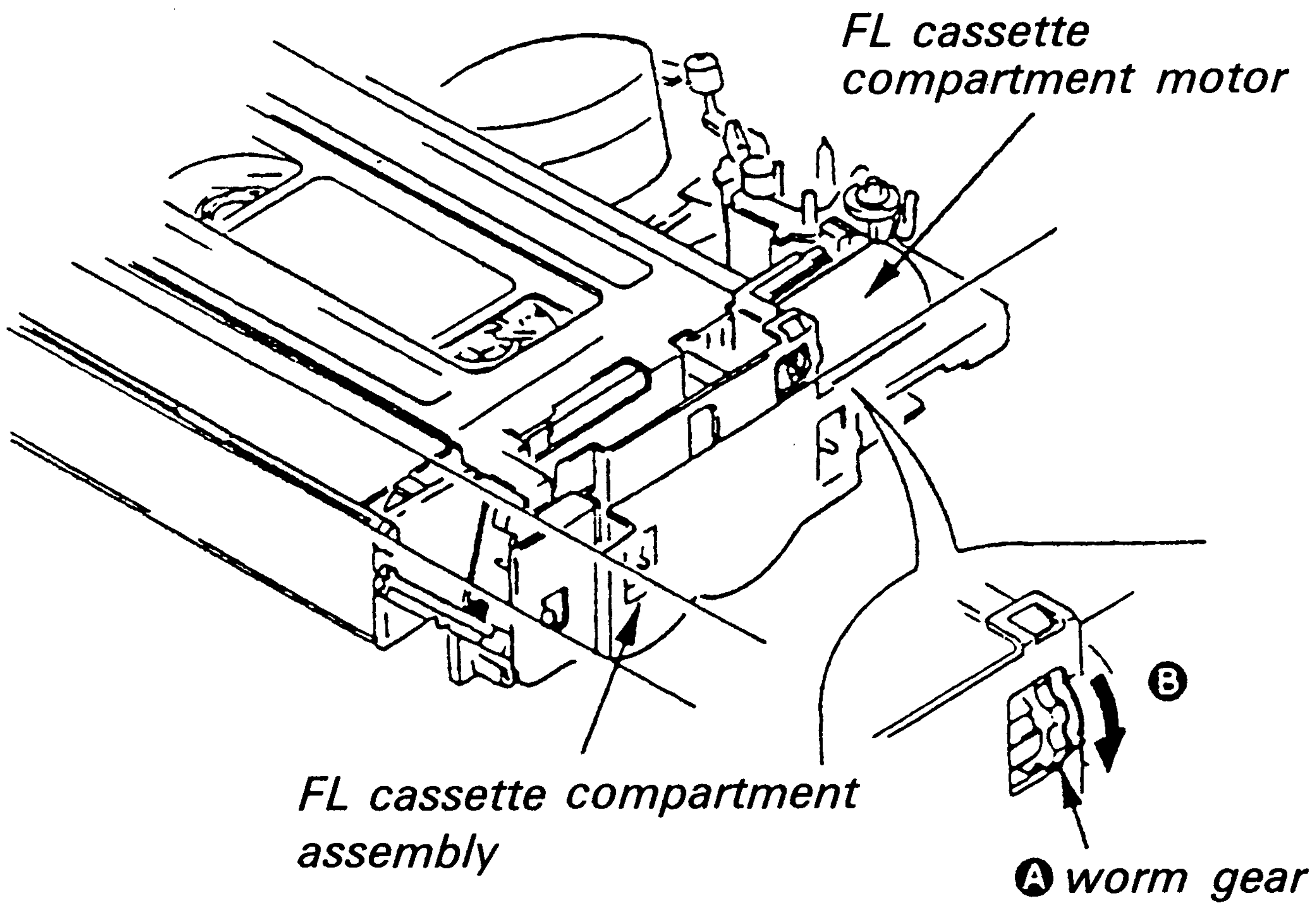

FL cassette compartment motor
Ⓑ
FL cassette compartment assembly
Ⓐ worm gear

Fig. 3.

Note: When performing 1. to 3., be careful not to clog and damage the cassette tape.

4. UPPER DRUM REPLACEMENT

4-1. Removal of Upper Drum

1) Remove the screw ❶ (BVTP3×12). (See Fig. 4.)
2) Remove the screw ❷ (P3×6) and take out the grounding shaft ❸. (See Fig. 4.)
3) Completely remove the rotary upper drum board and desolder the soldering indicated by the arrows (16 points).
4) Remove two screws ❹ (PSW3×8) and take out the rotary upper drum in the arrow direction Ⓐ. (See Fig. 5.)
If it is difficult, remove by shaking the rotary upper drum gradually.

Note: If the drum can not be removed, check whether the solders have been removed or not again.

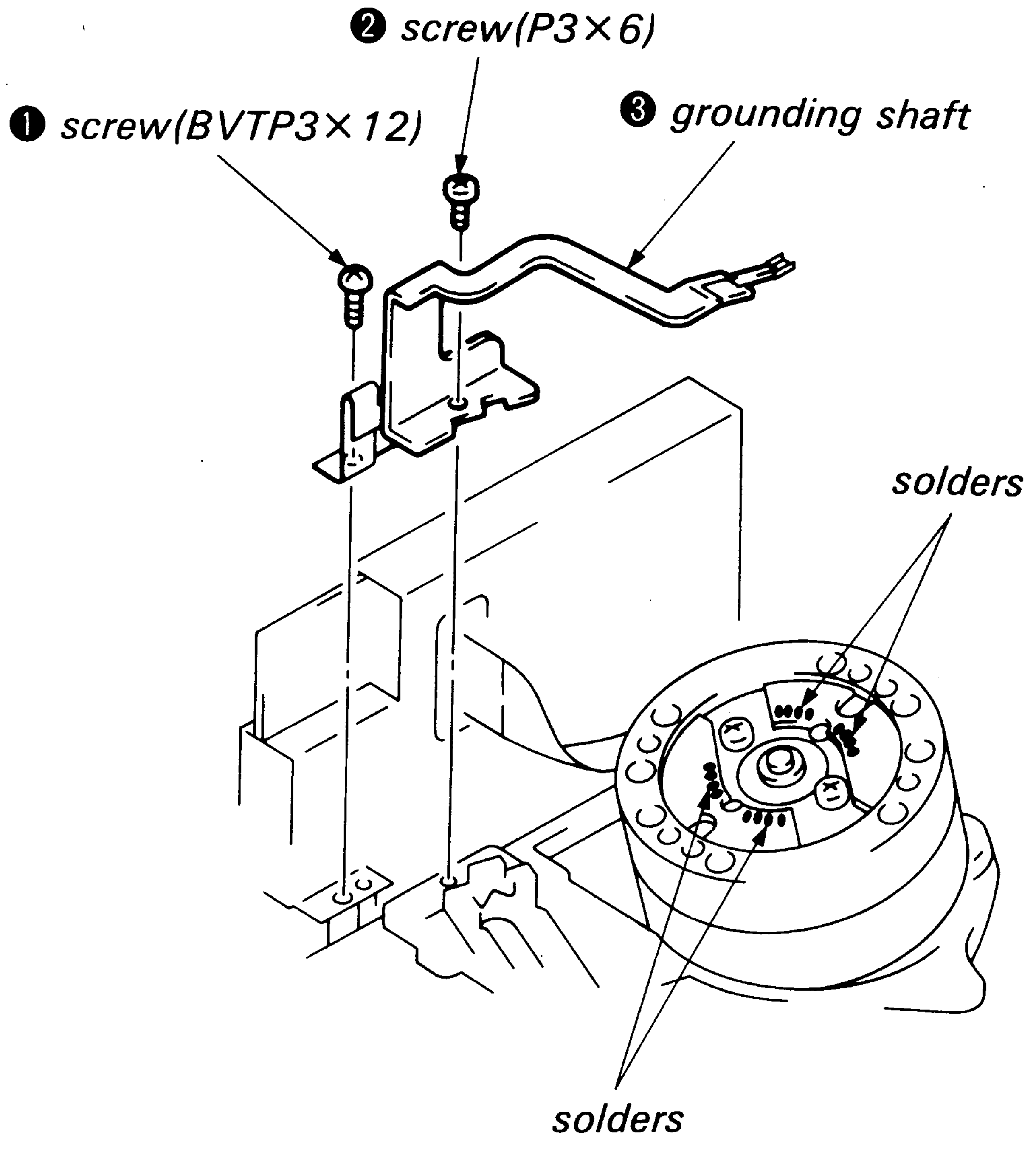

❷ screw(P3×6)
❶ screw(BVTP3×12)
❸ grounding shaft
solders
solders

Fig. 4.

4-2. Mounting Upper Drum

1) When inserting the rotary drum into the lower drum, be careful not to blur the contacting surface with fingerprint or the like.
2) Mount the rotaly upper drum by aligning red head side with marked S1 of rotary transformer board (lower drum) so that the screw holes of both upper and lower drums match. (See Fig.5.)
3) If it is difficult, mount the upper drum by shaking it gradually.
Note: Be careful not to damage the head. Make sure that the upper drum is tightly inserted.
4) Tighten two screws ❹ (PSW3×8). (See Fig. 5.)
Note: Temporary tighten two screws. After making sure that upper drum is tightly inserted, tighten the screws.
5) Solder 16 points on the board of the rotary upper drum.
6) Fix the grounding shaft ❸ using the screw ❷ (P3×6) so that the protrusion of grounding shaft end contacts the center of the drum shaft.
Note: When attaching the grounding shaft ❸, be careful not to apply force to the spring section of it.
7) Tighten a screw ❶ (BVTP3×12). (See Fig. 4.)

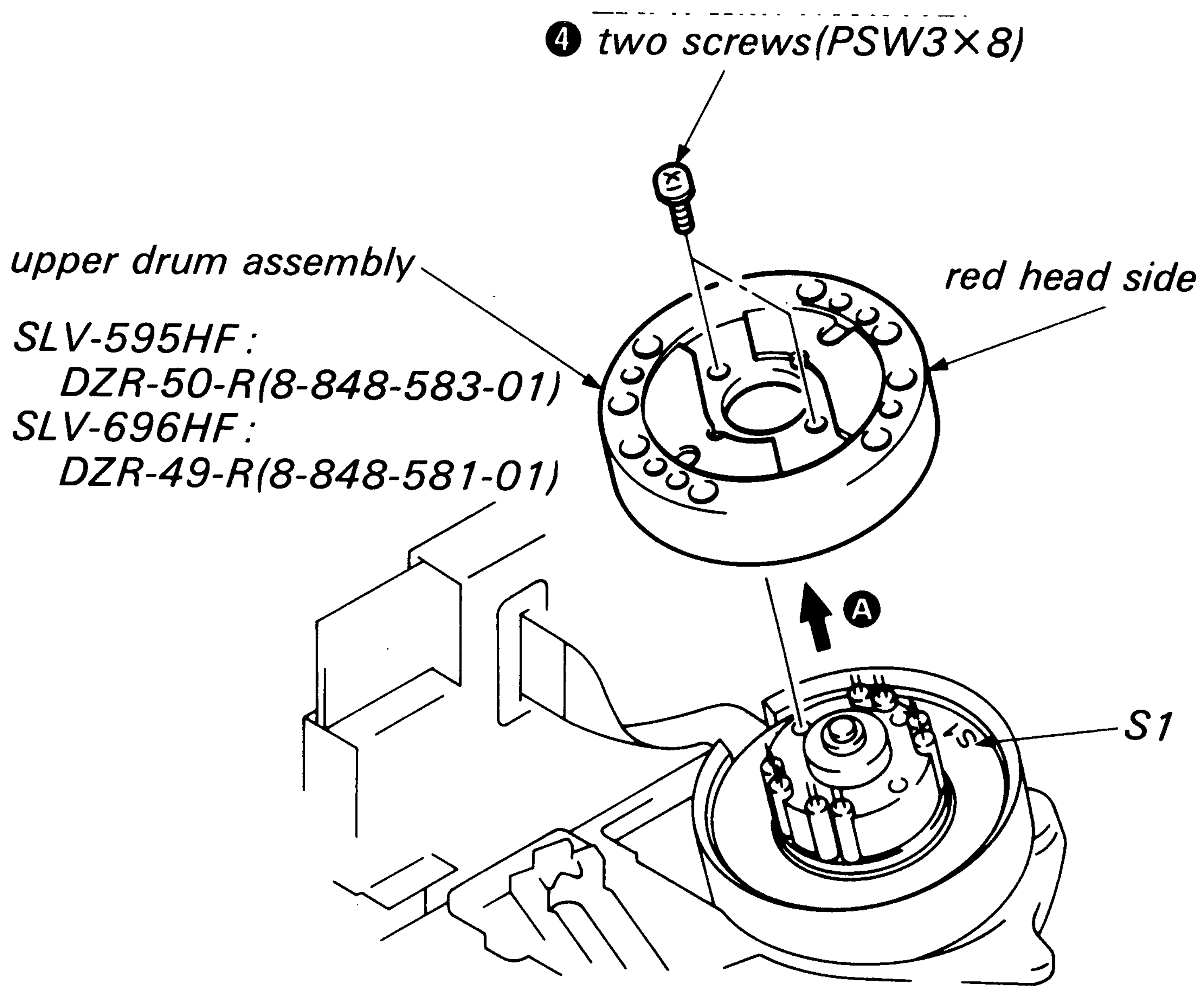

❹ two screws(PSW3×8)
upper drum assembly
SLV-595HF:
DZR-50-R(8-848-583-01)
SLV-696HF:
DZR-49-R(8-848-581-01)
red head side
Ⓐ
S1

Fig. 5.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Hookups and Getting Started

Before you can use your VCR for the first time, you need to connect it to your TV and set it up to receive programs for viewing and recording. This section explains how to hook up, set up, and operate your VCR so that you can start enjoying it right away. There are, however, many types of TVs available and many different ways in which your TV can be hooked up. As a result, this manual describes several ways your VCR can be connected.

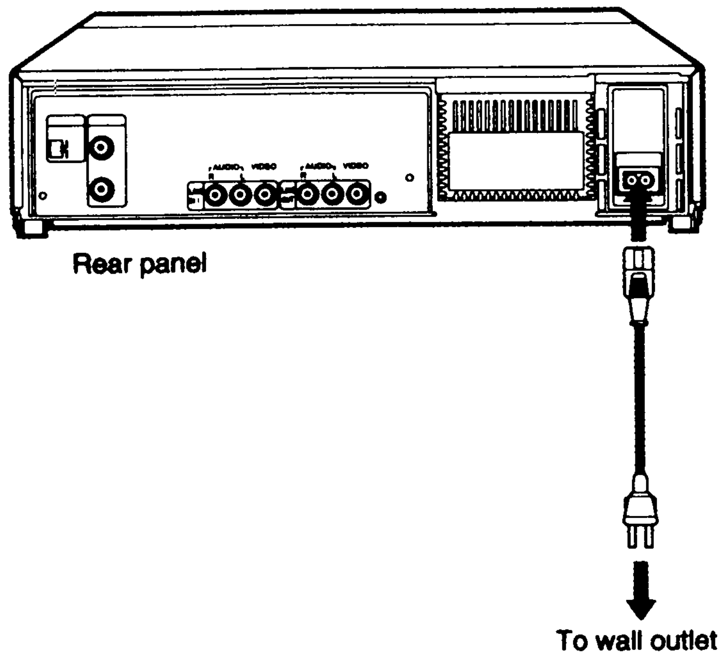
To hook up your VCR so that it works best for you, first scan through this section to find the diagram that best illustrates the way your TV is currently connected (antenna or cable/cable box). Then use the accompanying diagrams and procedures to complete your VCR's connections.

After you've completed the connections, follow the instructions for setup, including VCR Plus+ setup. (During setup, if you need more details of the procedures described, page numbers are provided where you can find complete, step-by-step instructions.)

After you've completed the setup, you're ready to use your VCR. Follow the instructions provided in "To Watch the TV", "To Watch the VCR", and "To Record A Program" for your specific hookup.
(Again, if you need step-by-step instructions, page numbers are provided where you can find this information.)

Before making the connections, check the following points:

- Turn off the power to the VCR and TV.
- Do not connect the AC power cords until all of the connections are completed.


Rear panel
To wall outlet

- Make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, consult your nearest Sony dealer or qualified technician.

Caution
Connections between the VCR VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in the instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices. Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

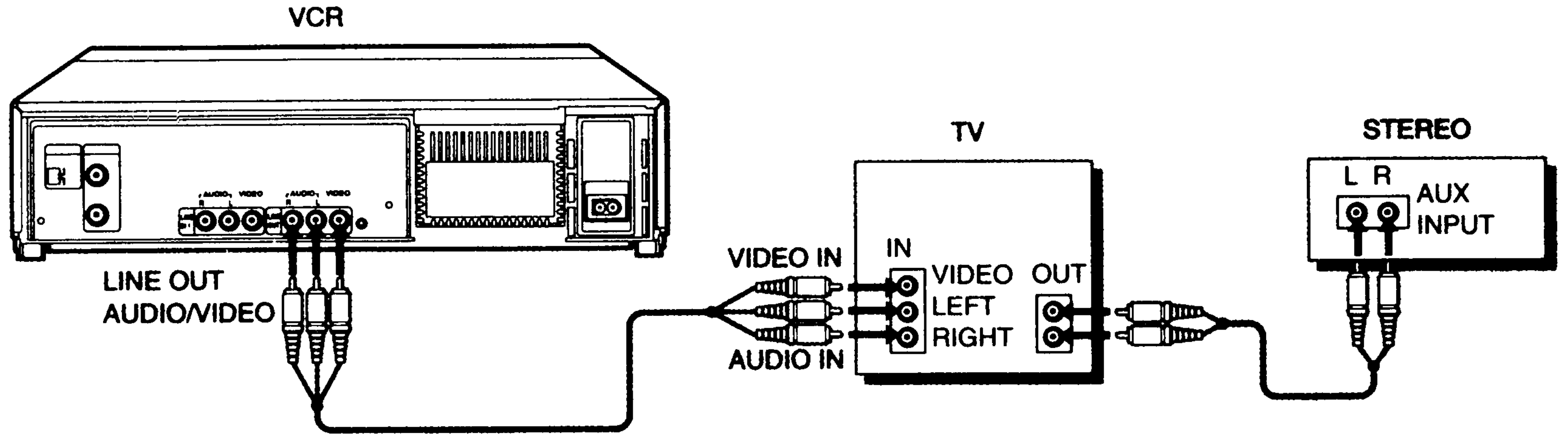
Hookup 1

Audio/Video (A/V) Hookup

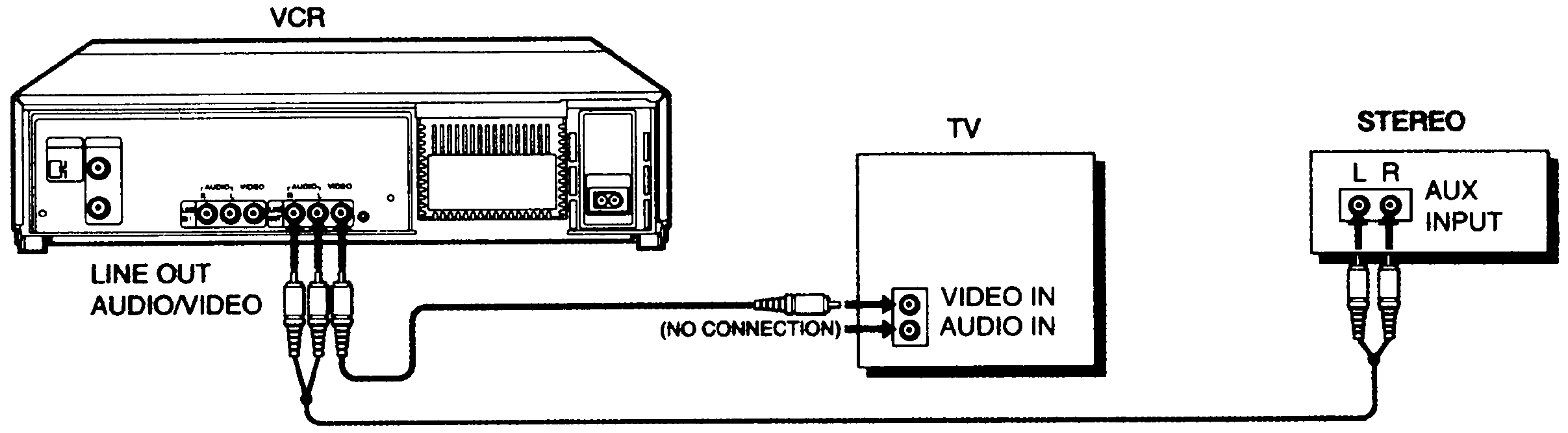
If your TV has audio/video (A/V) input jacks, you will get a better picture and sound if you hook up your VCR using these connections. In addition, for a true "home theater" experience, you should connect the audio outputs of your VCR or TV to your stereo system.
If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookup.

If you only wish to play back pictures and movies, you're finished after you've made these connections. If you want to record off-air or off your cable TV system, please do the A/V hookup on this page first, then proceed to the following pages for antenna or cable hookup.

1A Use hookup 1A if your TV is a stereo type.


VCR
LINE OUT
AUDIO/VIDEO
VIDEO IN
AUDIO IN
TV
IN
VIDEO
LEFT
RIGHT
OUT
STEREO
L R
AUX
INPUT

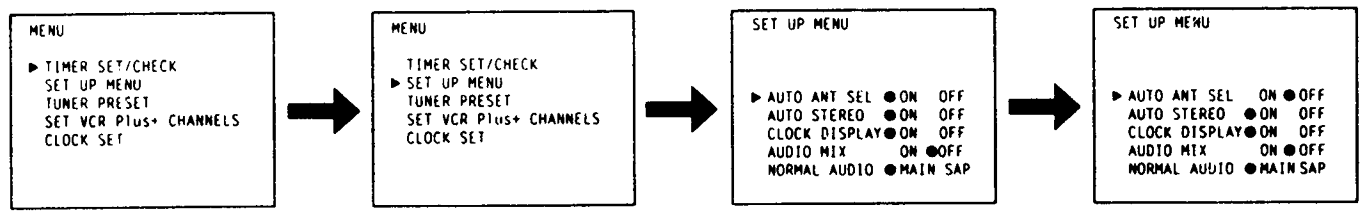
1B Use hookup 1B if your TV does not have stereo jacks.


VCR
LINE OUT
AUDIO/VIDEO
(NO CONNECTION)
TV
VIDEO IN
AUDIO IN
STEREO
L R
AUX
INPUT

After you've hooked up your TV using the A/V connections, use the following procedure to set up and use the VCR with your TV.

A/V Setup & Operation
Set AUTO ANT SEL to OFF.

Press MENU. Select SET UP MENU. Select AUTO ANT SEL. Set to OFF.


MENU
▶ TIMER SET/CHECK
SET UP MENU
TUNER PRESET
SET VCR Plus+ CHANNELS
CLOCK SET
MENU
TIMER SET/CHECK
▶ SET UP MENU
TUNER PRESET
SET VCR Plus+ CHANNELS
CLOCK SET
SET UP MENU
▶ AUTO ANT SEL ●ON OFF
AUTO STEREO ●ON OFF
CLOCK DISPLAY●ON OFF
AUDIO MIX ON ●OFF
NORMAL AUDIO ●MAIN SAP
SET UP MENU
▶ AUTO ANT SEL ON ●OFF
AUTO STEREO ●ON OFF
CLOCK DISPLAY●ON OFF
AUDIO MIX ON ●OFF
NORMAL AUDIO ●MAIN SAP

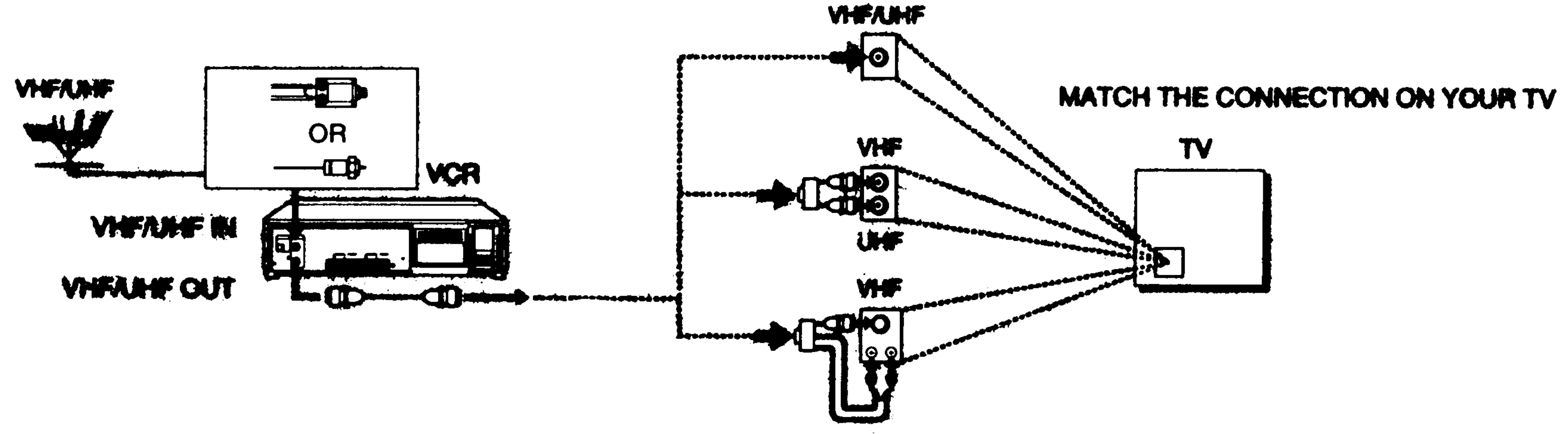
Details are on page 26.

Hookup 2

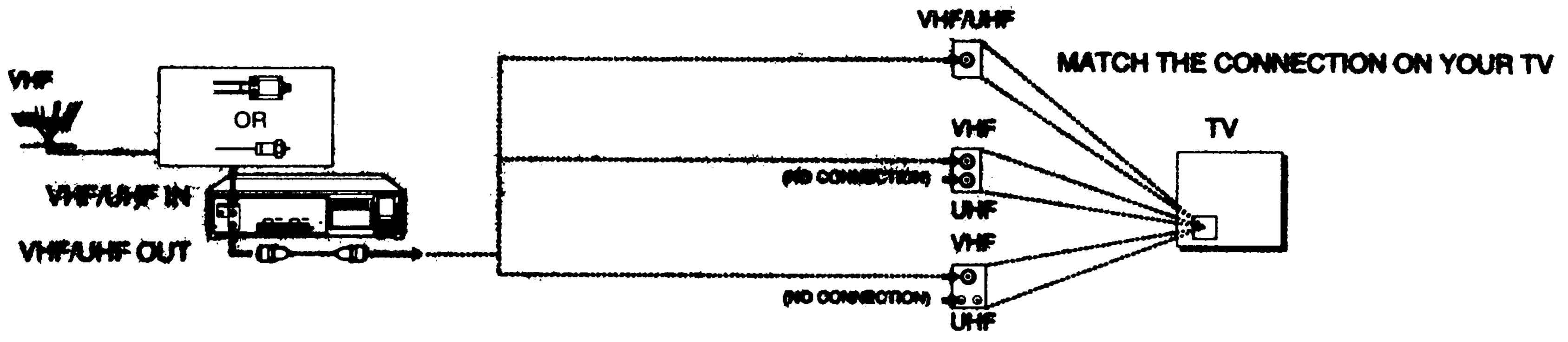
Antenna Hookup

Make the following connections if you're using an antenna (not a cable TV).

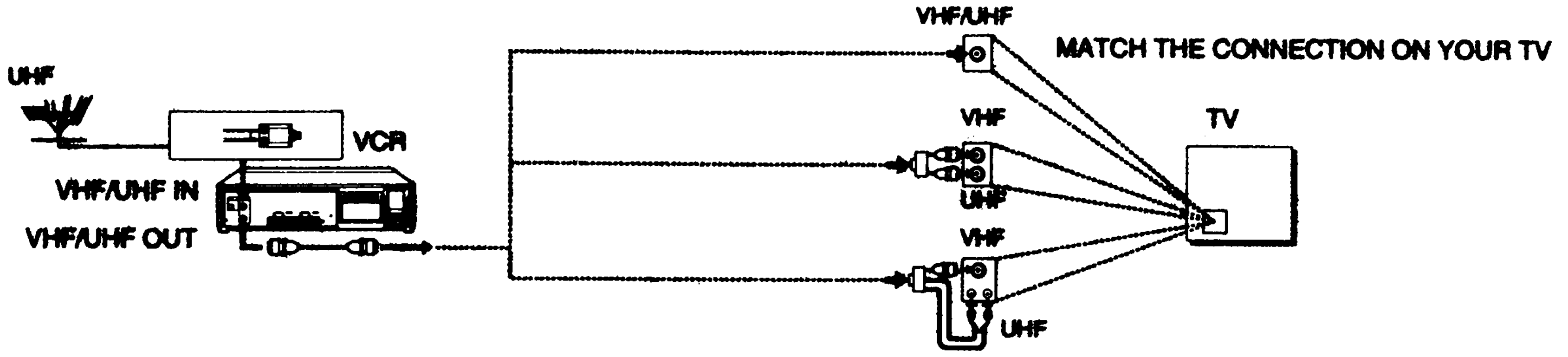
2A Use hookup 2A for a VHF/UHF antenna you get (Ch 2-13 and Ch 14 or higher).


VHF/UHF
OR
VCR
VHF/UHF IN
VHF/UHF OUT
VHF/UHF
VHF
UHF
VHF
UHF
MATCH THE CONNECTION ON YOUR TV
TV

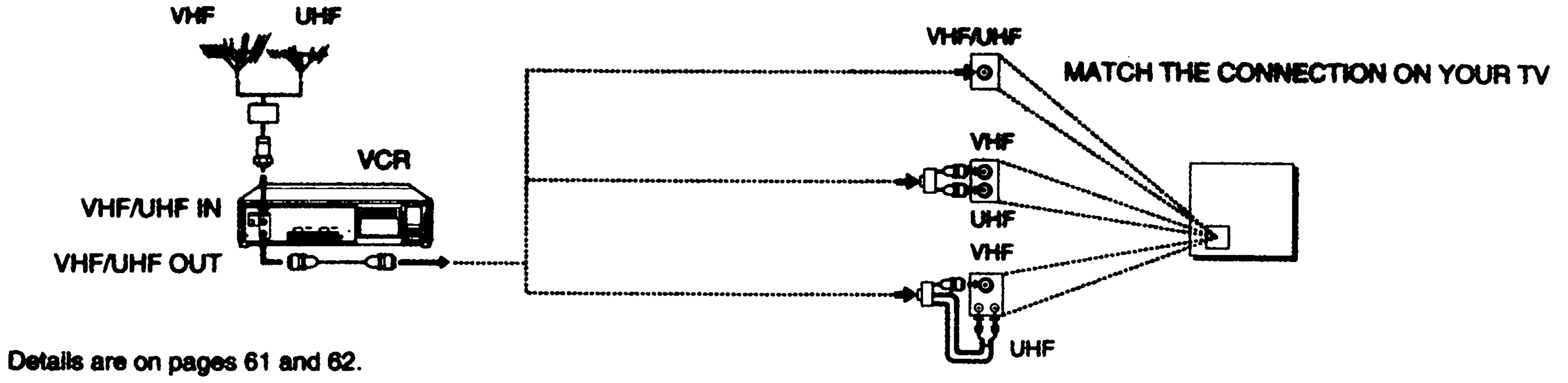
2B Use hookup 2B for VHF only (Ch 2-13 only).


VHF
OR
VHF/UHF IN
VHF/UHF OUT
VHF/UHF
VHF
(NO CONNECTION)
UHF
VHF
(NO CONNECTION)
UHF
MATCH THE CONNECTION ON YOUR TV
TV

2C Use hookup 2C for UHF only (Ch 14 or higher).


UHF
VCR
VHF/UHF IN
VHF/UHF OUT
VHF/UHF
VHF
UHF
VHF
UHF
MATCH THE CONNECTION ON YOUR TV
TV

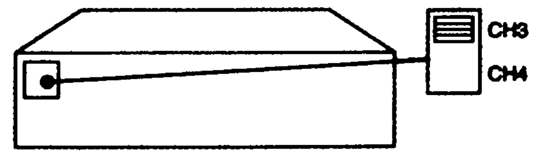
2D Use hookup 2D if you're using separate VHF and UHF antennas.


VHF
UHF
VCR
VHF/UHF IN
VHF/UHF OUT
VHF/UHF
VHF
UHF
VHF
UHF
MATCH THE CONNECTION ON YOUR TV

Details are on pages 61 and 62.

VCR Setup (Antenna)

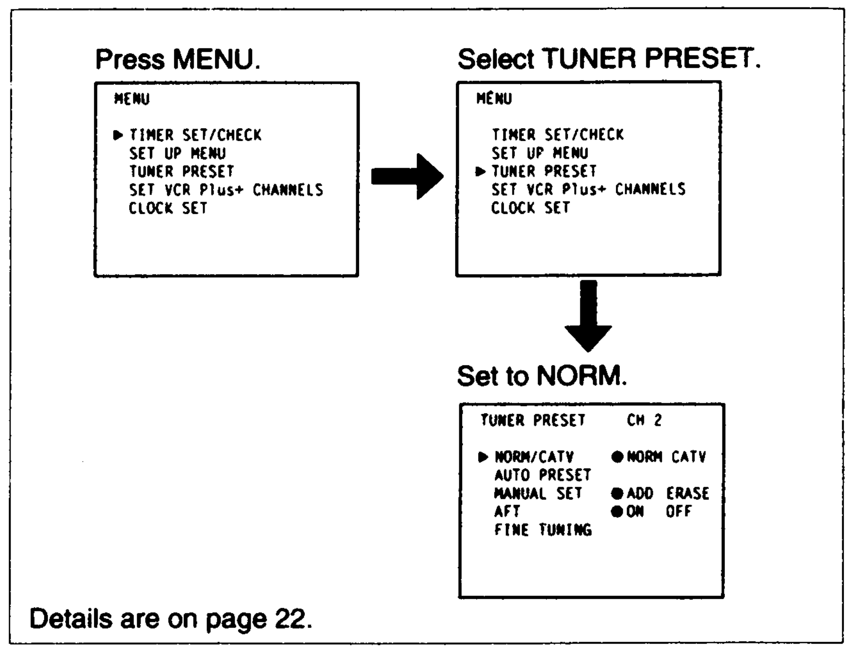
1 **Set the RF Unit on the VCR's rear panel to CH 3 or CH 4.**
If you made A/V connections, skip this adjustment.



Set to whichever channel is not used in your area.
If both are used, pick either channel.

Details are on page 60.

2 **Set NORM/CATV to NORM.**



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

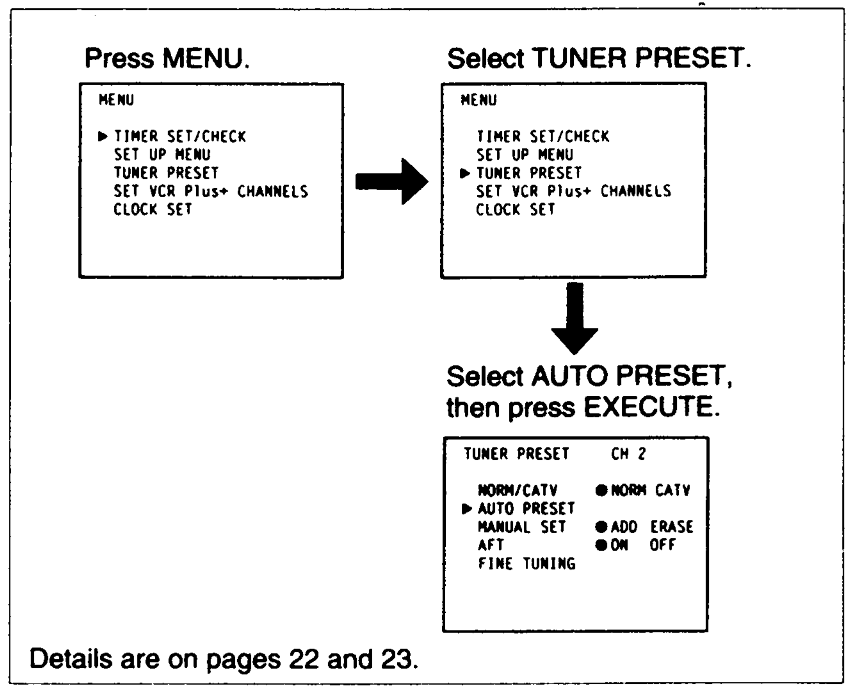
```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Set to NORM.

```
TUNER PRESET       CH 2

▶ NORM/CATV        ●NORM  CATV
  AUTO PRESET
  MANUAL SET       ●ADD   ERASE
  AFT              ●ON    OFF
  FINE TUNING
```

Details are on page 22.

3 **Preprogram the channels into the VCR.**



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select AUTO PRESET, then press EXECUTE.

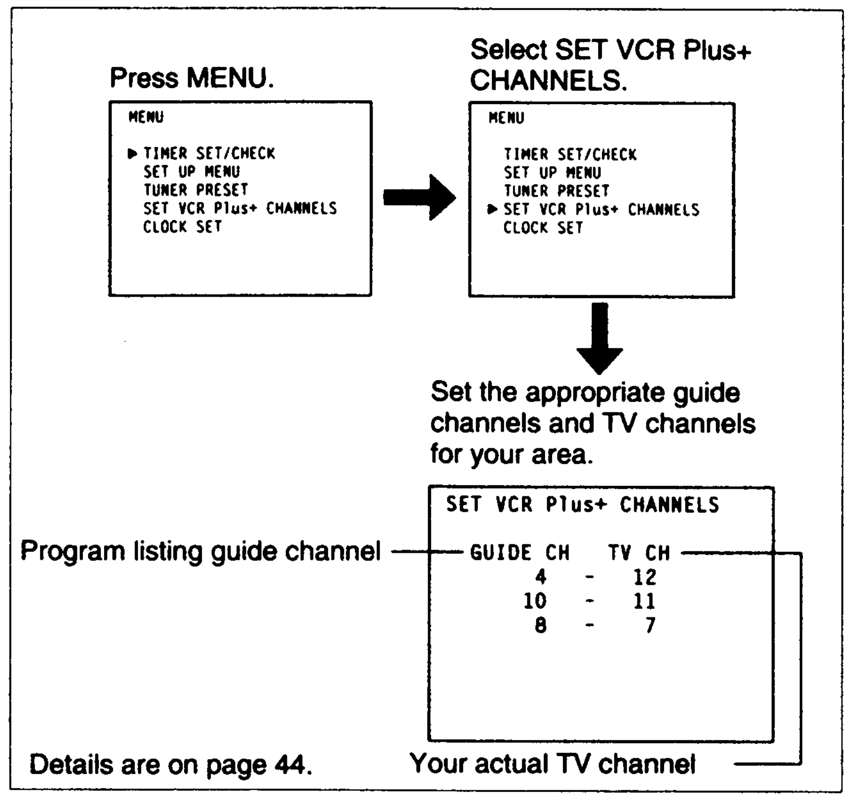
```
TUNER PRESET       CH 2

  NORM/CATV        ●NORM  CATV
▶ AUTO PRESET
  MANUAL SET       ●ADD   ERASE
  AFT              ●ON    OFF
  FINE TUNING
```

Details are on pages 22 and 23.

VCR Plus+ Channel Setup (Antenna)

1 **Find the VCR Plus+ Channel Listing in your program guide.**
For details on the VCR Plus+ Channel, see page 43.

2 **If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows:**



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select SET VCR Plus+ CHANNELS.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
▶ SET VCR Plus+ CHANNELS
  CLOCK SET
```

Set the appropriate guide channels and TV channels for your area.

```
SET VCR Plus+ CHANNELS

  GUIDE CH    TV CH
     4    -    12
    10    -    11
     8    -     7
```

Program listing guide channel
Your actual TV channel

Details are on page 44.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Tune the TV normally.

To Watch the VCR

1 Tune the TV to CH 3 or CH 4, whichever you set on the back of the VCR. (If you made the A/V connections on page 7, set your TV to the A/V input instead.)
2 Insert a cassette and press ▷ PLAY. If there's no picture on your TV, press the VCR's TV/VTR button until the VTR indicator comes on in the VCR's display window.

Details are on page 28.

To Record A Program

1 Press VCR Plus+ on the Remote Commander.
2 Enter the program's PlusCode number.
3 Press ONCE, DAILY, or WEEKLY on the Remote Commander.
4 Insert a blank cassette.
5 Press TIMER REC on the Remote Commander.

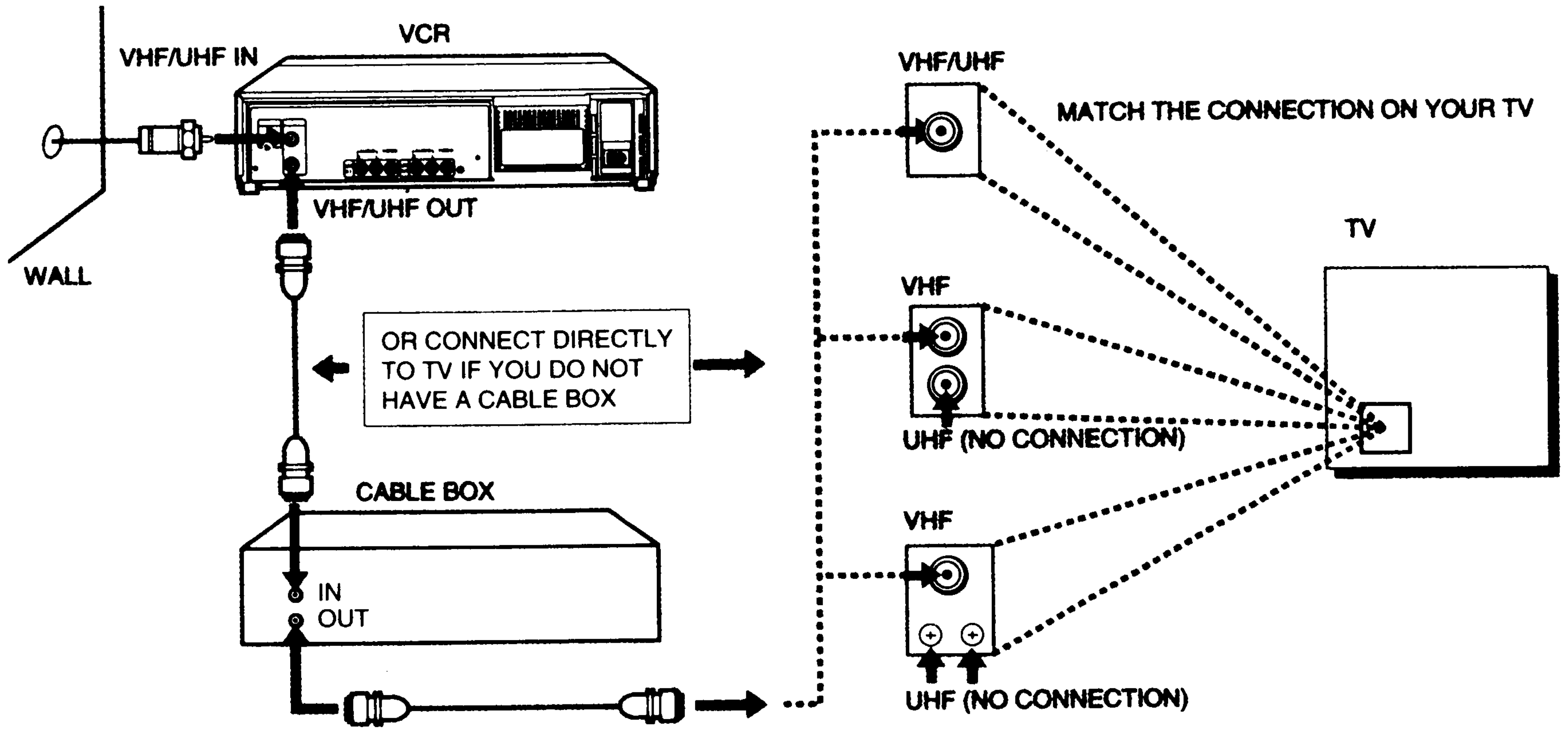
Details are on page 45.

Hookup 3

Simple Cable Hookup

Recommended Use:
Since this is the simplest hookup, and allows the most effective use of your VCR's VCR Plus+ timer recording feature, we recommend that you try this hookup first. If you cannot record the channels you want, you'll need to change your hookup to one of the choices on the following pages, or contact your cable company for assistance.

Background
This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. You will not be able to record scrambled channels with this hookup.



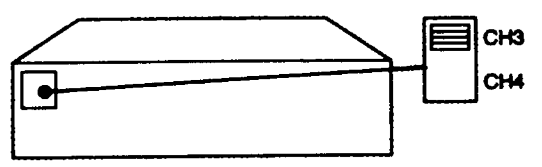
What You Can and Can't Do With This Hookup

What You Can Do
- **Record any unscrambled channel directly, without using a cable box.**

What You Can't Do
- **Record scrambled channels that require a cable box.**

VCR Setup (Simple Cable)

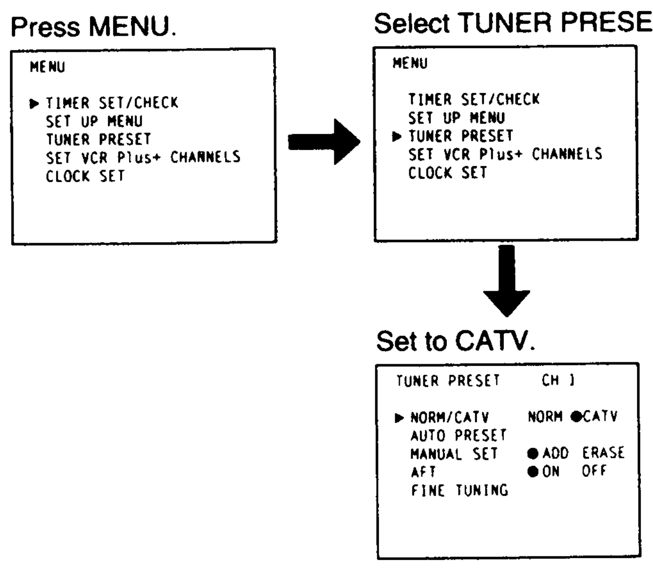
1 Set the RF Unit on the VCR's rear panel to CH 3 or CH 4.
If you made A/V connections, skip this adjustment.



Set to whichever channel is not used in your area.
If both are used, pick either channel.

Details are on page 60.

2 Set NORM/CATV to CATV.



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

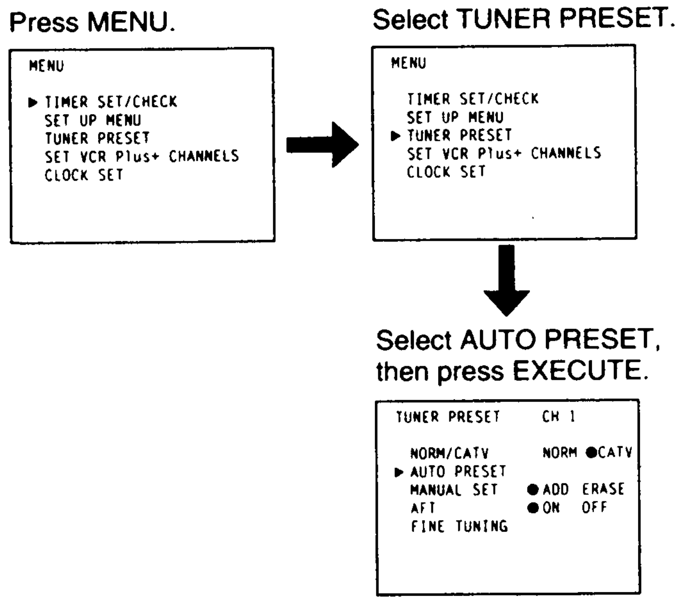
```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Set to CATV.

```
TUNER PRESET     CH 1

▶ NORM/CATV      NORM ●CATV
  AUTO PRESET
  MANUAL SET    ●ADD  ERASE
  AFT           ●ON   OFF
  FINE TUNING
```

Details are on page 22.

3 Preprogram the channels into the VCR.



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select AUTO PRESET, then press EXECUTE.

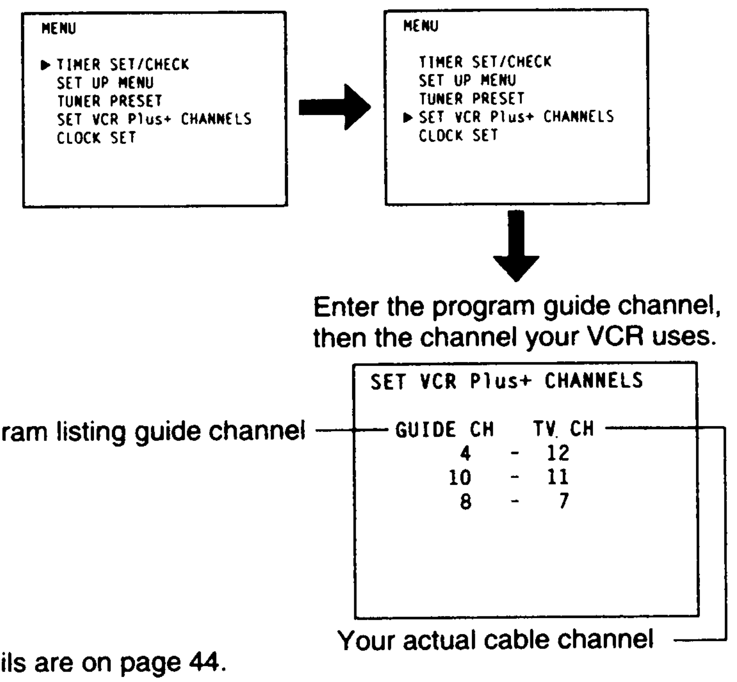
```
TUNER PRESET     CH 1

  NORM/CATV      NORM ●CATV
▶ AUTO PRESET
  MANUAL SET    ●ADD  ERASE
  AFT           ●ON   OFF
  FINE TUNING
```

Details are on pages 22 and 23.

VCR Plus+ Channel Setup (Simple Cable)

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows:



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select SET VCR Plus+ CHANNELS.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
▶ SET VCR Plus+ CHANNELS
  CLOCK SET
```

Enter the program guide channel, then the channel your VCR uses.

```
SET VCR Plus+ CHANNELS

GUIDE CH   TV CH
   4    -   12
  10    -   11
   8    -    7
```

Program listing guide channel

Your actual cable channel

Details are on page 44.

To Watch TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.

2 Select the channel with your cable box (if you have one), or directly tune with your TV (if you don't).

To Watch the VCR

1a If you didn't use the A/V input:
- Turn ON the cable box.
- Select CH 3 or CH 4 on the **cable box** (whichever you set on the back of the VCR).
- Select the output channel of the cable box (usually 2,3 or 4) on your TV.

1b If you made the A/V connections on page 7: Set your TV to the A/V input.

2 Insert a cassette and press ▷ PLAY.

Details are on page 28.

To Record A Program

1 Press VCR Plus+ on the Remote Commander.

2 Enter the program's PlusCode number.

3 Press ONCE, DAILY, or WEEKLY on the Remote Commander.

4 Insert a blank cassette.

5 Press TIMER REC on the Remote Commander.

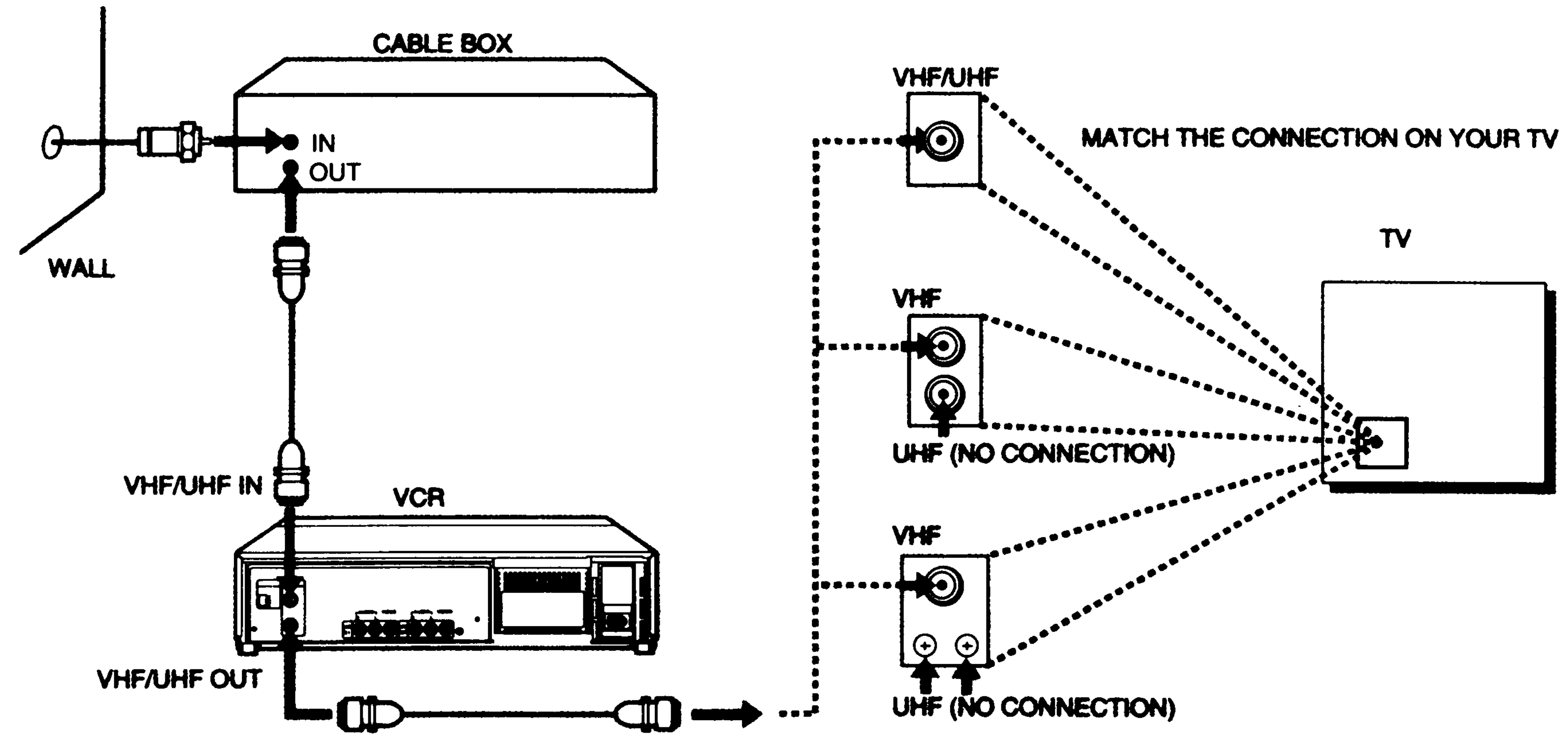
Details are on page 45.

Hookup 4

Alternate Cable Hookup

Recommended Use:
This hookup will allow you to record either scrambled or unscrambled channels, however, you will have to set the channel on the cable box for each program you want to record. If your cable system scrambles all or most channels, you **must** use this hookup. If your cable system only scrambles a few channels, you may prefer **Hookup 3** or **5** (on pages 10 and 14, respectively). Please note that **Hookup 3** will allow the easiest programming with VCR Plus+, but will not allow you to record scrambled channels.
Hookup 5 will allow you to record either scrambled or unscrambled channels, but will require that you purchase a few extra parts at your local electronics store.

Background
This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. Although this hookup will also allow you to record these scrambled channels, you must use the cable box rather than the VCR to select channels.


CABLE BOX
IN
OUT
WALL
VHF/UHF IN
VCR
VHF/UHF OUT
VHF/UHF
MATCH THE CONNECTION ON YOUR TV
TV
VHF
UHF (NO CONNECTION)
VHF
UHF (NO CONNECTION)

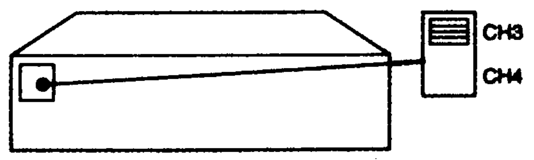
What You Can and Can't Do With This Hookup

What You Can Do
- **Record any channel by selecting the channel on the cable box.**

What You Can't Do
- **Record with the cable box turned off.**
- **Record by selecting channels directly from the VCR.**
- **Record one channel while watching another channel.**

VCR Setup (Alternate Cable)

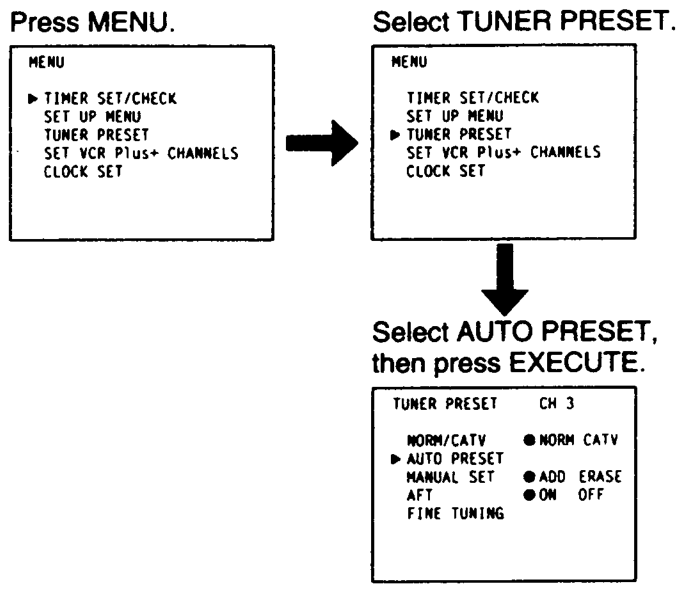
1 Set the RF Unit on the VCR's rear panel to CH 3 or CH 4.
If you made A/V connections, skip this adjustment.



Set to whichever channel is not used in your area. If both are used, pick either channel.
Details are on page 60.

2 Switch on your cable box.

3 Preprogram the channels into the VCR.


Press MENU.

Select TUNER PRESET.

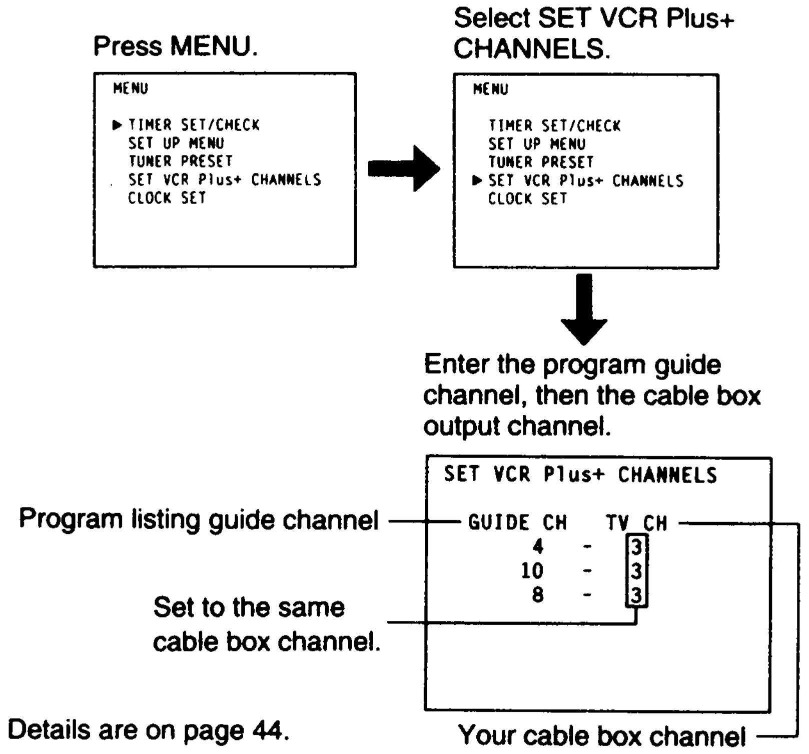
Select AUTO PRESET, then press EXECUTE.
MENU
▶ TIMER SET/CHECK
SET UP MENU
TUNER PRESET
SET VCR Plus+ CHANNELS
CLOCK SET
MENU
TIMER SET/CHECK
SET UP MENU
▶ TUNER PRESET
SET VCR Plus+ CHANNELS
CLOCK SET
TUNER PRESET CH 3
NORM/CATV ●NORM CATV
▶ AUTO PRESET
MANUAL SET ●ADD ERASE
AFT ●ON OFF
FINE TUNING

Details are on pages 22 and 23.

VCR Plus+ Channel Setup (Alternate Cable)

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

2 For all channels that you want to record, set each channel to the channel that your cable box uses for its output (usually 2, 3, or 4), as follows:


Press MENU.

Select SET VCR Plus+ CHANNELS.

Enter the program guide channel, then the cable box output channel.
MENU
▶ TIMER SET/CHECK
SET UP MENU
TUNER PRESET
SET VCR Plus+ CHANNELS
CLOCK SET
MENU
TIMER SET/CHECK
SET UP MENU
TUNER PRESET
▶ SET VCR Plus+ CHANNELS
CLOCK SET
SET VCR Plus+ CHANNELS
GUIDE CH TV CH
4 - 3
10 - 3
8 - 3
Program listing guide channel
Set to the same cable box channel.
Your cable box channel

Details are on page 44.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Switch on your cable box.
3 Tune the TV to the cable box output channel (usually 2, 3, or 4).
4 Select the channel that you want to watch with your cable box.

To Watch the VCR

1 Tune the TV to CH 3 or CH 4, (or to A/V input if you made A/V connections.)
2 Insert a cassette and press ▷ PLAY.

Details are on page 28.

To Record A Program

1 Switch on the cable box.
2 Select a channel you wish to record on the cable box.
3 Press VCR Plus+ on the Remote Commander.
4 Enter the program's PlusCode number.
5 Press ONCE, DAILY, or WEEKLY on the Remote Commander.
6 Insert a blank cassette.
7 Press TIMER REC on the Remote Commander.
8 Leave the cable box ON.

Details are on page 45.

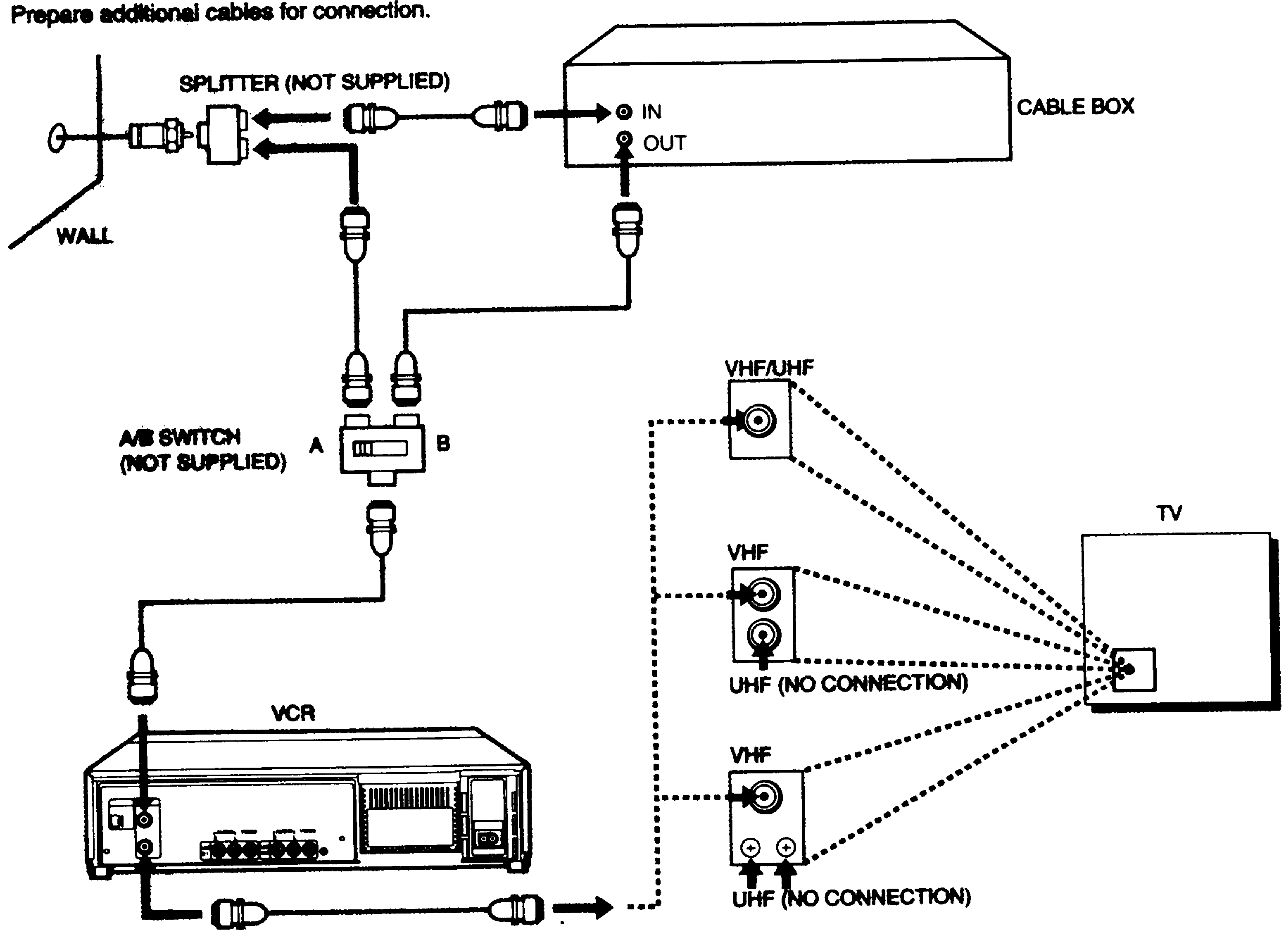
Hookup 5

Advanced Cable Hookup

Recommended Use:
By using the A/B switch, this hookup allows you to record most channels directly from the VCR (position "A"). You only use position "B" and the cable box if you want to record a "scrambled" channel. This gives you the most convenient operation of VCR Plus+ and the VCR's timer.

Background
This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. This hookup will allow you to record unscrambled channels by selecting "A" on the A/B switch, and tuning the channel directly on your VCR. To record "scrambled" channels, select "B" on the A/B switch, and select the channel using the cable box. If your cable system scrambles all, or most channels, you must use the alternate cable hookup **(Hookup 4)** on page 12.

- **Only one cable is supplied with your VCR. Prepare additional cables for connection.**



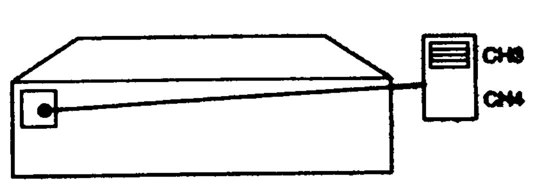
What You Can and Can't Do With This Hookup

What You Can Do
- **Record unscrambled channels directly with the A/B switch in the 'A' position.**
- **Record scrambled channels through the cable box with the A/B switch in the 'B' position.**

What You Can't Do
- **Record scrambled channels directly without the cable box.**
- **Watch a different channel while you are recording a scrambled channel.**
- **Record scrambled channels through the cable box with the A/B switch in the 'A' position.**

VCR Setup (Advanced Cable)

1 Set the RF Unit on the VCR's rear panel to CH 3 or CH 4.

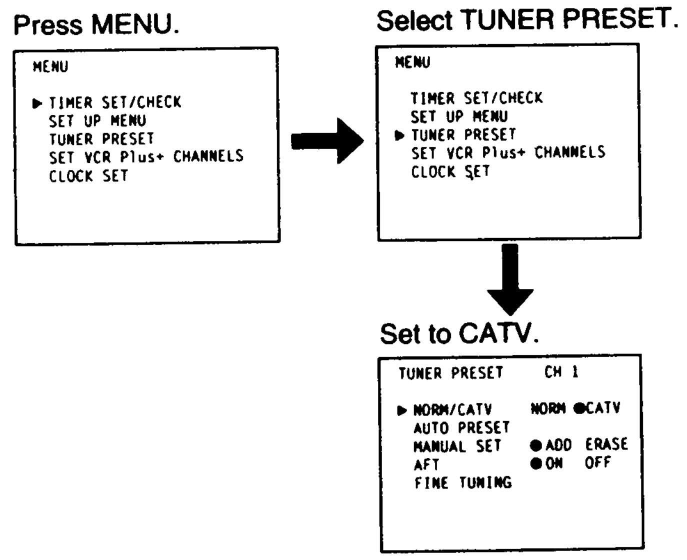


Set to whichever channel is not used in your area. If both are used, pick either channel.

Details are on page 60.

2 Set the A/B switch to 'A'.

3 Set NORM/CATV to CATV.



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

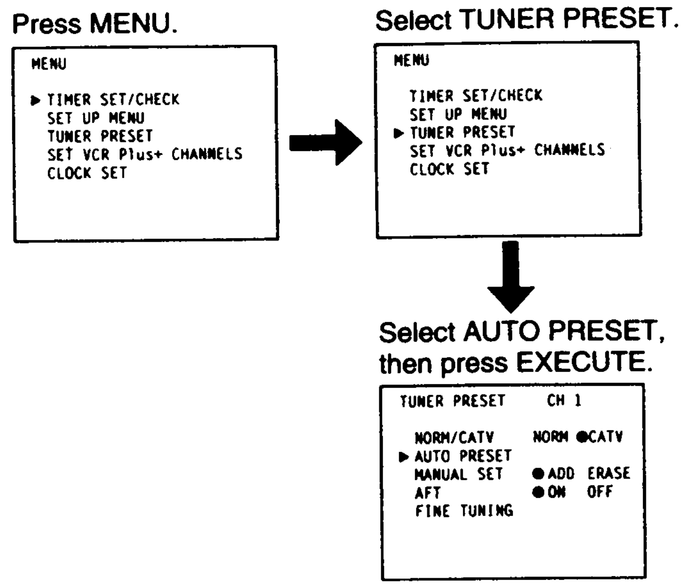
```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Set to CATV.

```
TUNER PRESET      CH 1

▶ NORM/CATV      NORM ●CATV
  AUTO PRESET
  MANUAL SET     ●ADD  ERASE
  AFT            ●ON   OFF
  FINE TUNING
```

Details are on page 22.

4 Preprogram the channels into the VCR.



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

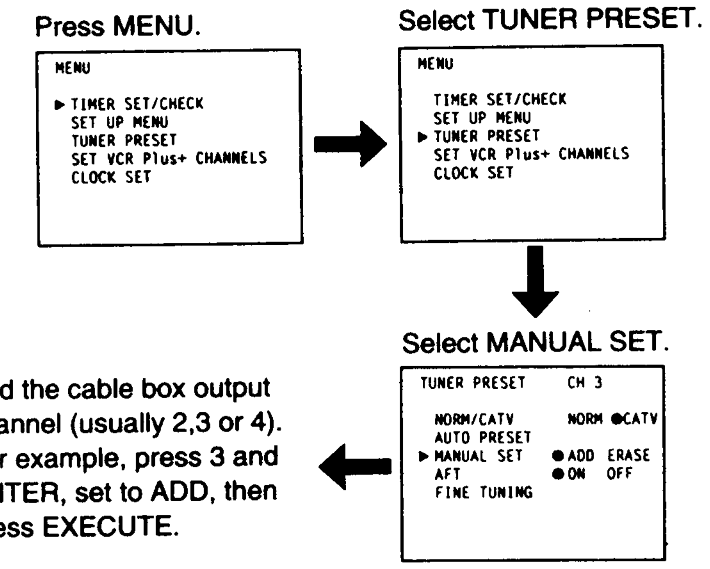
```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select AUTO PRESET, then press EXECUTE.

```
TUNER PRESET      CH 1

  NORM/CATV      NORM ●CATV
▶ AUTO PRESET
  MANUAL SET     ●ADD  ERASE
  AFT            ●ON   OFF
  FINE TUNING
```

Details are on pages 22 and 23.

5 Add the cable box output channel (usually 2, 3, or 4).



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select TUNER PRESET.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select MANUAL SET.

```
TUNER PRESET      CH 3

  NORM/CATV      NORM ●CATV
  AUTO PRESET
▶ MANUAL SET     ●ADD  ERASE
  AFT            ●ON   OFF
  FINE TUNING
```

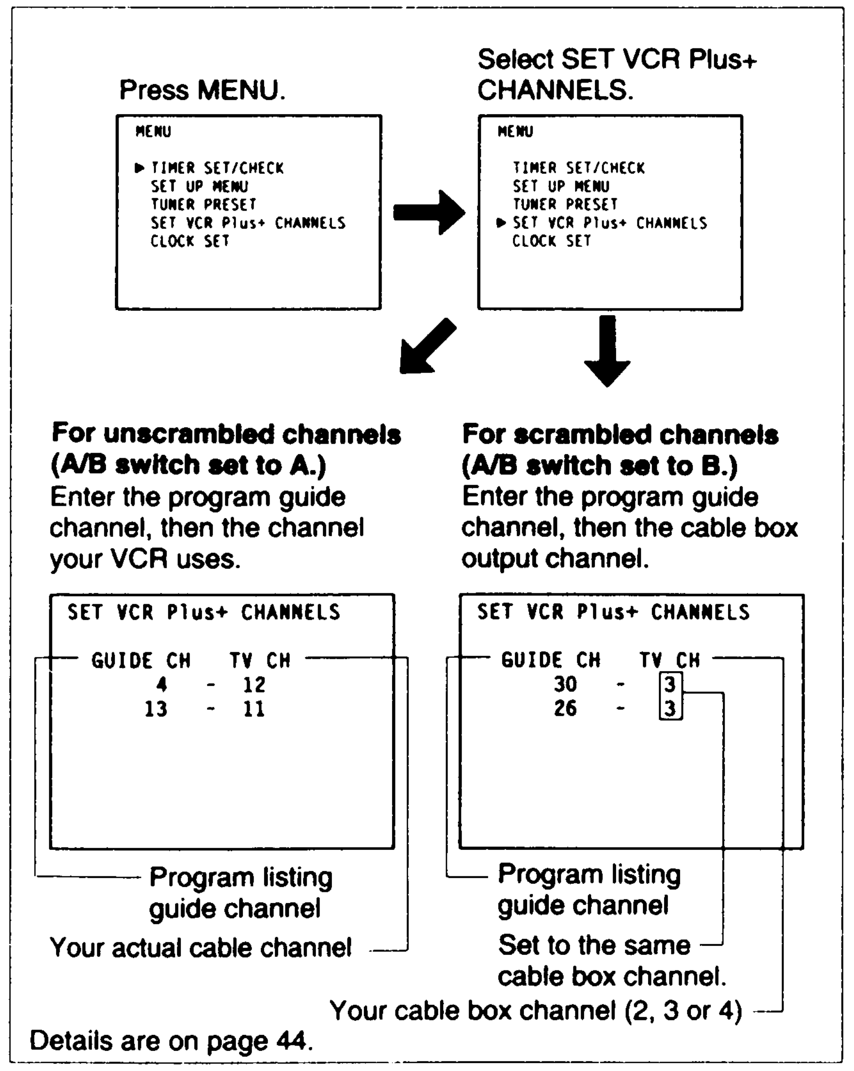
Add the cable box output channel (usually 2,3 or 4). For example, press 3 and ENTER, set to ADD, then press EXECUTE.

Details are on page 23.

VCR Plus+ Channel Setup (Advanced Cable)

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 43.

2 Set unscrambled and scrambled channels as shown below.



Press MENU.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

Select SET VCR Plus+ CHANNELS.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
▶ SET VCR Plus+ CHANNELS
  CLOCK SET
```

For unscrambled channels (A/B switch set to A.)
Enter the program guide channel, then the channel your VCR uses.

```
SET VCR Plus+ CHANNELS

 GUIDE CH   TV CH
     4   -  12
    13   -  11
```

Program listing guide channel

Your actual cable channel

For scrambled channels (A/B switch set to B.)
Enter the program guide channel, then the cable box output channel.

```
SET VCR Plus+ CHANNELS

 GUIDE CH   TV CH
    30   -  3
    26   -  3
```

Program listing guide channel

Set to the same cable box channel.

Your cable box channel (2, 3 or 4)

Details are on page 44.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Set A/B switch to B.
3 Switch on your cable box.
4 Tune the TV to the cable box output channel (usually 2, 3, or 4).
5 Select the channel you want to watch with your cable box.
6 After watching the TV, please remember to return the A/B switch and cable box channel to the correct position.

To Watch the VCR

1 Tune the TV to CH 3 or CH 4, (or to A/V input if you made A/V connections.)
2 Insert a cassette and press ▷ PLAY.

Details are on page 28.

To Record A Program

- **Unscrambled Channels**

1 Switch the A/B switch to 'A'.
2 Press VCR Plus+ on the Remote Commander.
3 Enter the program's PlusCode number.
4 Press ONCE, DAILY, or WEEKLY on the Remote Commander.
5 Insert a blank cassette.
6 Press TIMER REC on the Remote Commander.
7 Leave the A/B switch in 'A'.

- **Scrambled Channels**

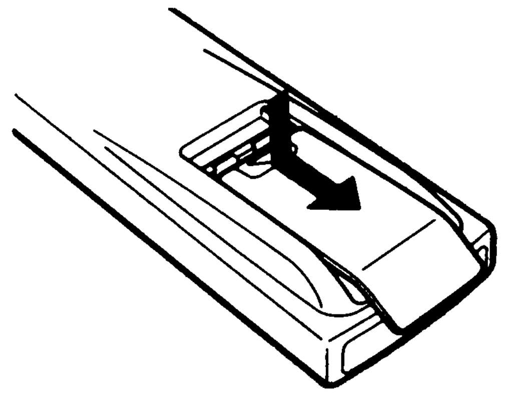
1 Switch the A/B switch to 'B'.
2 Switch on the cable box.
3 Select the channel you want to record on the cable box.
4 Enter the program's PlusCode number.
5 Press ONCE, DAILY, or WEEKLY on the Remote Commander.
6 Insert a blank cassette.
7 Press TIMER REC on the Remote Commander.
8 Leave the A/B switch in 'B'.

Details are on page 45.

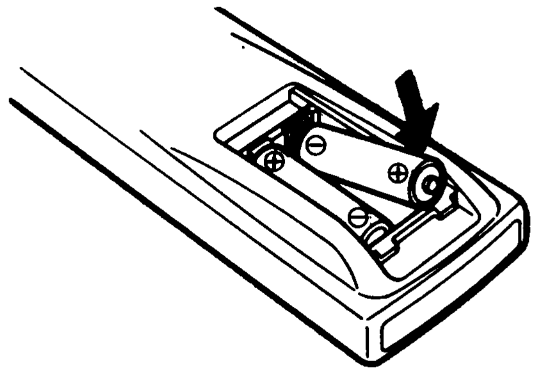
Preparing the Remote Commander

Inserting Batteries

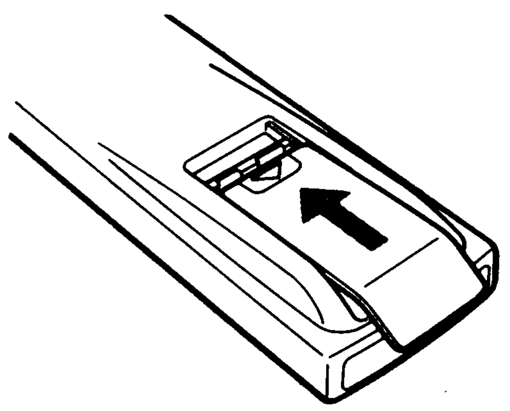
1 Open the lid.



2 Insert two size AA (IEC designation R6) batteries with the polarity lined up correctly.



3 Close the lid.



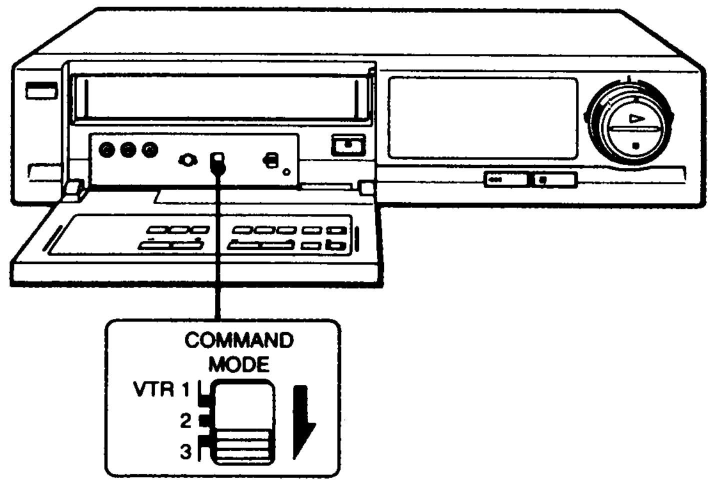
Notes on the handling of batteries

- With normal use, the batteries should last for approximately six months.
- If you do not use the Remote Commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.

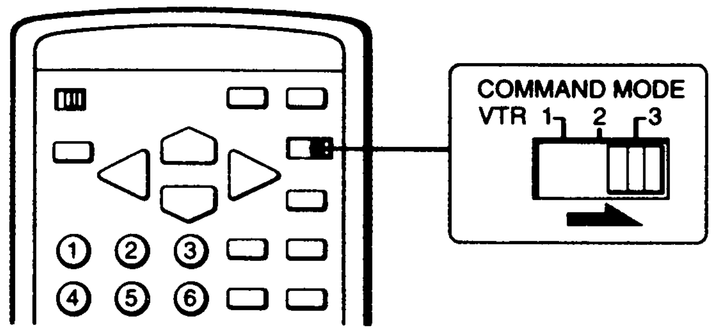
Setting the Command Mode

You can select three different positions for the Command Mode setting.

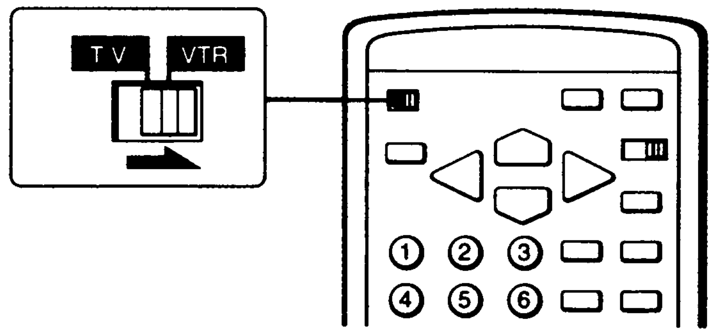
1 Set the COMMAND MODE VTR 1/2/3 selector on the VCR to VTR 3.



2 Set the COMMAND MODE 1/2/3 selector on the Remote Commander to 3.



3 Set the TV/VTR remote control selector on the Remote Commander to VTR.



Controlling Other Sony Video Equipment If Other Sony Video Equipment Has a COMMAND MODE Selector:

1 **Set the Remote Commander COMMAND MODE 1/2/3 selector to a position other than the one you selected for this VCR.**

2 **Set the COMMAND MODE selector of any other video equipment to the same position you selected in step 1.**

If other Sony video equipment does not have a COMMAND MODE selector, you can control other Sony video equipment using the following COMMAND MODE settings:

Infrared remote controlled Sony Betamax VCR's: position 1
(Some of them may not be controlled in this mode.)

Sony 8 mm format VCRs: position 2

Sony VHS format VCRs: position 3

Manufacturers and their Code Numbers (SLV-696HF only)

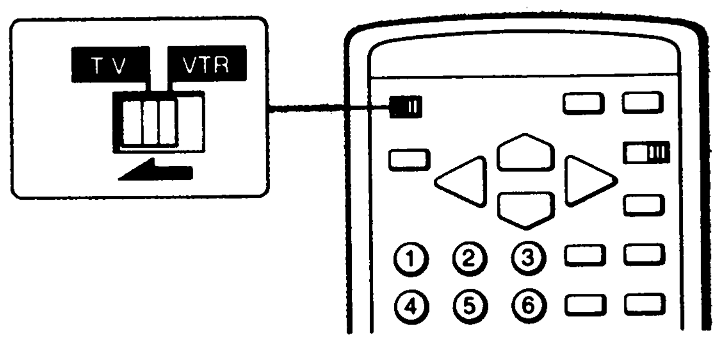
Your Remote Commander is preprogrammed for use with a number of different TV sets. If your TV is listed in the table below, set the appropriate manufacturer's code prior to using the Remote Commander.

Manufacturer	Code Number
SONY	1
Akai	4
AOC	4
Centurion	12
Coronado	3
Curtis-Mathes	12
Daytron	12
Fisher	11
General Electric	6, 10
Hitachi	2, 3
J.C.Penney	4, 12
JVC	9
KMC	3
Marantz	4, 13
MGA/Mitsubishi	4, 12,13
NEC	4, 12
Panasonic	6
Philco	3, 4
Philips	8
Pioneer	15
Portland	3
Quasar	6
Radio Shack	5
RCA	4, 10
Sampo	12
Sanyo	11
Scott	12
Sylvania	8, 12
Teknika	3, 8
Toshiba	7
Wards	3, 4, 12
Yorx	12
Zenith	14

Setting the Manufacturer's Code Number

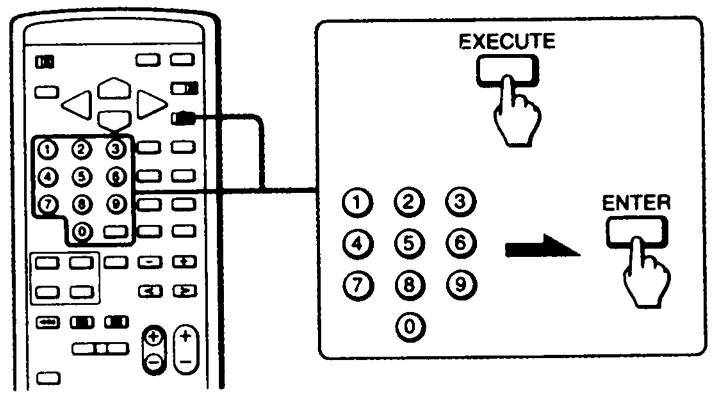
The following steps show you how to use your Remote Commander to set the appropriate manufacturer's code number for a non-Sony TV.

1 **Set the TV/VTR remote control selector to TV.**



2 **While pressing the EXECUTE button, press the manufacturer's code number and the ENTER button.**

You can now use the POWER, VOL +/–, CHANNEL +/– and the TV/VTR buttons on your Remote Commander to operate the TV.



NOTES:
- The TV/VTR button may not function, depending on the manufacturer. If this problem occurs, use your TV's remote control unit.
- If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.
- If you enter a new code number, the code number previously entered will be erased.
- If you release the EXECUTE button before pressing the ENTER button, the setting will be cancelled.
- Some manufacturers may use a different remote control system from the one programmed to work with your VCR. If this is the case, and you are unable to operate the TV with your Remote Commander, use the TV's remote control unit instead.
- When you replace the batteries in the Remote Commander, the code number automatically resets to 1 (SONY). Reset the appropriate code number, if necessary.

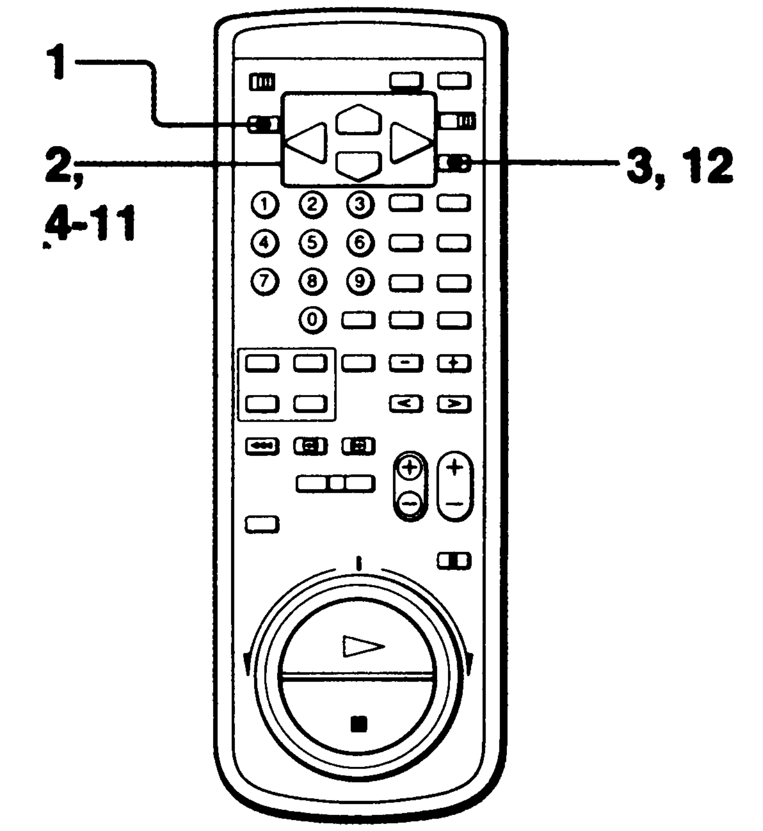
Setting the Time and Date

You can set the VCR time and date on the TV screen using the Remote Commander.

Example of Time and Date Setting

Example: To set to 3:32 pm. July 4. 1992

Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select the items.



1 Press MENU.

The main MENU appears.

```
MENU
▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

2 Press ▲ or ▼ to move the cursor (▶) to CLOCK SET.

```
MENU
  TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
▶ CLOCK SET
```

3 Press EXECUTE.

"1/1 1992 WED 12:00 AM" is displayed. The leftmost 1, in the "month" position, flashes.

```
CLOCK SET
1/1/1992  WED 12:00AM
```

4 Press ▲ or ▼ until 7 appears in the month position.

```
CLOCK SET
7/1/1992  WED 12:00AM
```

5 Press ▶ to make the next number in the "day" position flash.

```
CLOCK SET
7/1/1992  WED 12:00AM
```

6 Press ▲ or ▼ until 4 appears in the day position.

The day of the week is set automatically.

```
CLOCK SET
7/4/1992  SAT 12:00AM
```

7 Press ▶ to make the year flash and press ▲ to change the year.

```
CLOCK SET
7/4/1992 SAT 12:00AM
```

8 Press ▶ to make the time flash.

```
CLOCK SET
7/4/1992  SAT 12:00AM
```

9 Press ▲ or ▼ until 3 PM appears.

```
CLOCK SET
7/4/1992  SAT 3:00 PM
```

10 Press ▶ to make the minute flash.

```
CLOCK SET
7/4/1992  SAT 3:00PM
```

11 Press ▲ or ▼ until 32 appears in the minute position.

```
CLOCK SET
7/4/1992  SAT 3:32PM
```

12 Press EXECUTE at the same time that you hear the time signal.

Pressing EXECUTE will set the clock to 3:32 pm 00 seconds.

NOTES:
- Do not set the time and date during timer-activated recording, timer recording standby or quick-timer recording.
- When the time and date clock is displayed the clock keeps running as long as no changes are made. The seconds are not reset to 00 when you return to the original screen.

Presetting the Active Channels

This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and CATV channels 1 to 125. These channels can be preset using the Remote Commander and the TUNER PRESET display. First, we recommend that you preset the active channels in your area using the automatic preset mode. Then, if there are any unwanted channels, disable them manually. If you have already decided which channels you wish to preset on the VCR, set them directly using the channel number buttons.

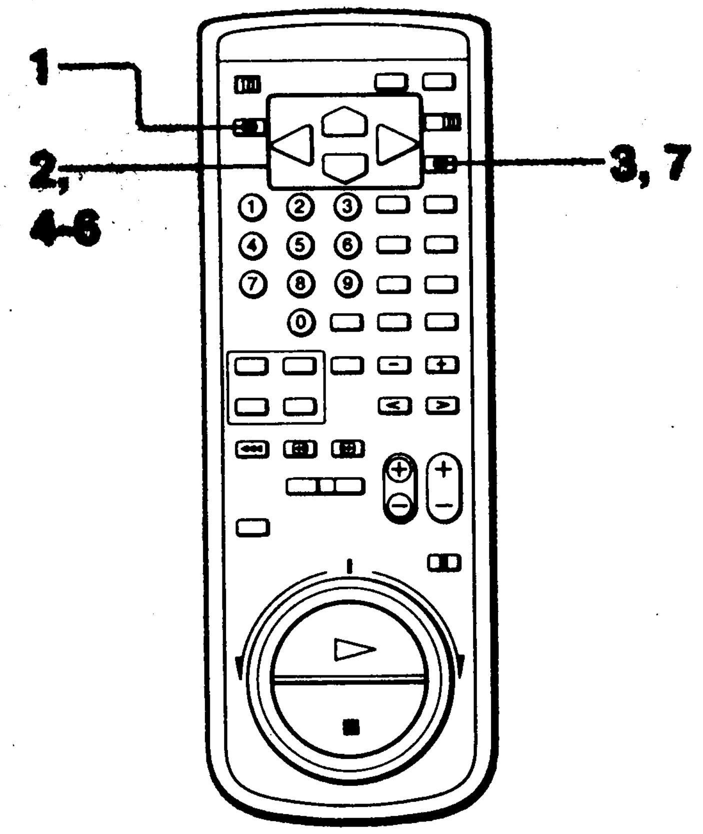
Before presetting channels, check the following points:

- Turn ON the VCR and the TV.
- If you have connected the TV and the VCR using the VHF/UHF OUT on the VCR only, make sure that the TV is set to the correct channel (CH 3 or CH 4) for the VCR.
- Press TV/VTR to display the VTR indicator in the display window on the VCR.
- Press INPUT SELECT so that the TUNER indicator and channel number appear in the display window on the VCR.

Presetting All Receivable Channels Automatically

Use ▲ and ▼ to move the cursor.

Use ◀ and ▶ to select the items.



1 Press MENU.

The main MENU appears.

```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

2 Press ▲ or ▼ to move the cursor (▶) to TUNER PRESET.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
▶ TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

3 Press EXECUTE.

The TUNER PRESET menu is displayed.

```
TUNER PRESET        CH 2

  NORM/CATV    ●NORM CATV
  AUTO PRESET
▶ MANUAL SET   ●ADD ERASE
  AFT          ●ON  OFF
  FINE TUNING
```

4 Press ▲ or ▼ to move the cursor to NORM/CATV.

```
TUNER PRESET        CH 2

▶ NORM/CATV    ●NORM CATV
  AUTO PRESET
  MANUAL SET   ●ADD ERASE
  AFT          ●ON  OFF
  FINE TUNING
```

5 Press ◀ or ▶ to select NORM or CATV.

NORM presets the VHF and UHF channels; CATV presets your cable TV channels. The lowest channel number, 2 for NORM and 1 for CATV, will appear on the screen.

```
TUNER PRESET        CH 2

▶ NORM/CATV   ● NORM CATV
  AUTO PRESET
  MANUAL SET  ● ADD ERASE
  AFT         ● ON  OFF
  FINE TUNING
```

6 Press ▲ or ▼ to move the cursor to AUTO PRESET.

```
TUNER PRESET        CH 2

  NORM/CATV   ● NORM CATV
▶ AUTO PRESET
  MANUAL SET  ● ADD ERASE
  AFT         ● ON  OFF
  FINE TUNING
```

7 Press EXECUTE.

Receivable channels are preset in numerical sequence. When no more channels can be found, the presetting stops and the picture of the lowest numbered channel is displayed on the tape counter. "please wait" is flashing while presetting on the TV screen.

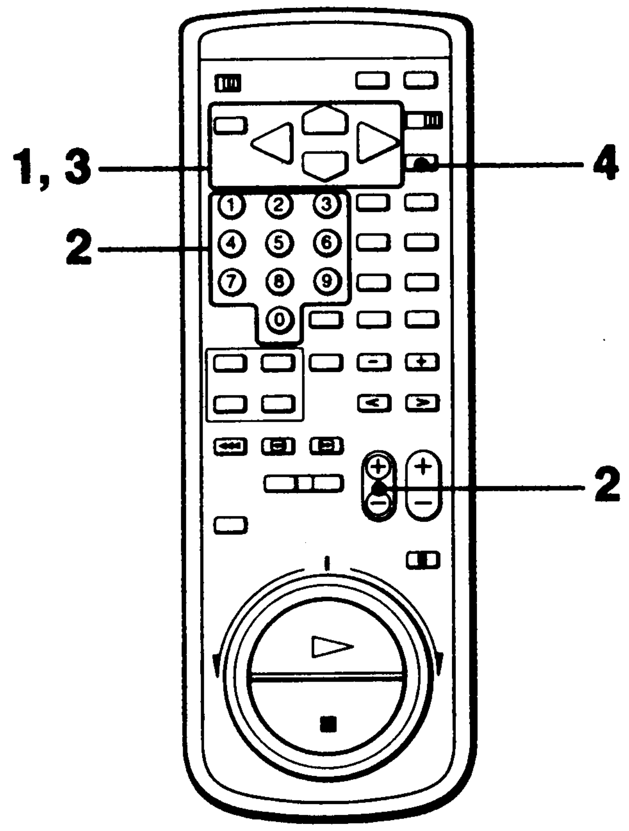
NOTE:
The VCR automatically exits from the TUNER PRESET menu if you don't proceed for more than one minute.

Presetting Desired Channels or Disabling Unwanted Channels

After automatic presetting, you can disable and/or add channels.

Use ▲ and ▼ to move the cursor.

Use ◀ and ▶ to select the items.



1 Follow steps 1 to 3 in "Presetting All Receivable Channels Automatically" on page 22.

2 To disable channels, press CH +/– to select the channel.
To add channels, press channel number buttons (0 to 9) and ENTER key to select the channel.

3 To disable channels, press ◀ or ▶ to select ERASE.
To add channels, press ◀ or ▶ to select ADD.

4 Press EXECUTE.

When you press CH +/–, the disabled channels are removed and the added channels are displayed.

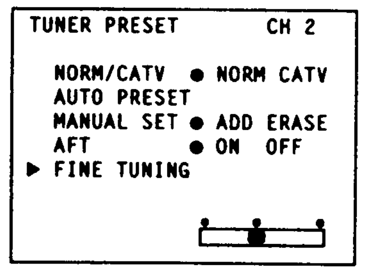
Fine-tuning

Normally, the Auto Fine Tuning (AFT) setting on the menu is set to ON, and the AFT function fine-tunes the picture. If the picture of a channel is not acceptable, fine-tune it manually.

1 Display the TUNER PRESET menu referring to steps 1 to 3 in "Presetting All Receivable Channels Automatically" (page 22).

2 Press ▲ or ▼ to move the cursor to FINE TUNING.

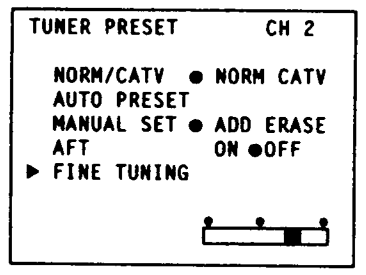
The fine tuning indicator is displayed.



```
TUNER PRESET        CH 2

  NORM/CATV   ● NORM CATV
  AUTO PRESET
  MANUAL SET ● ADD ERASE
  AFT         ● ON  OFF
▶ FINE TUNING
```

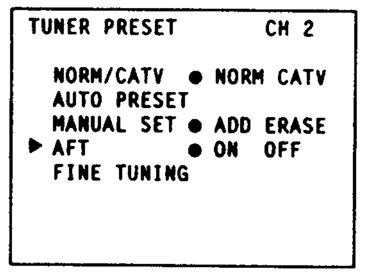
3 Press ◀ or ▶ to get a clearer picture.

The AFT ON/OFF automatically switches to OFF.



```
TUNER PRESET        CH 2

  NORM/CATV   ● NORM CATV
  AUTO PRESET
  MANUAL SET ● ADD ERASE
  AFT           ON ●OFF
▶ FINE TUNING
```

4 Press ▲ to move the cursor to AFT and select ON if you cannot get a better picture. Then, press EXECUTE.



```
TUNER PRESET        CH 2

  NORM/CATV   ● NORM CATV
  AUTO PRESET
  MANUAL SET ● ADD ERASE
▶ AFT         ● ON  OFF
  FINE TUNING
```

The FINE TUNING indicator

The FINE TUNING indicator shows the operable fine-tuning range and stops at the optimal point of reception. When the VCR's tuner is receiving an optimal broadcast signal, the indicator stops at the center position or one space right or left of the center position. However, even when a broadcast is received in an optimal condition, the indicator may not be at the position described.

Cable TV Channel Assignment

Cable TV systems use letters or numerals to designate the channels. To tune-in a CATV channel, refer to the chart below which shows the CATV channel, numbers on this VCR and the corresponding CATV channel. Note that the channel number assignment shown in the chart may not correspond to the channel number used by your local cable company. Check with your local cable TV company for more information on the available channels.

Number on this VCR	1	2	...	13	14	15	16	17	18
Corresponding CATV channel	A-8	2	...	13	A	B	C	D	E

19	20	21	22	23	24	25	26	27	28	29	30	31	32
F	G	H	I	J	K	L	M	N	O	P	Q	R	S

33	34	35	36	37	...	94	95	96	97	98	99
T	U	V	W	W+1	...	W+58	A-5	A-4	A-3	A-2	A-1

100	...	125
W+59	...	W+84

This VCR is designed to correspond to the standard cable system. However, the cable TV services may vary from area to area. Your local cable TV company may adopt either the HRC[1] or IRC[2] cable system. This VCR is capable of receiving either of these cable systems in the best condition.

1) **HRC (Harmonic Related Carriers)**
   All channels except for 5 and 6 are 1250 kHz lower than the standard cable system. Channels 5 and 6 are 750 kHz higher than the standard cable system.

2) **IRC (Incremental Related Carriers)**
   All channels except for 5 and 6 are the same as the standard cable system. Channels 5 and 6 are 2000 kHz higher than the standard cable system.

FINE TUNING indicator for receiving HRC or IRC cable systems

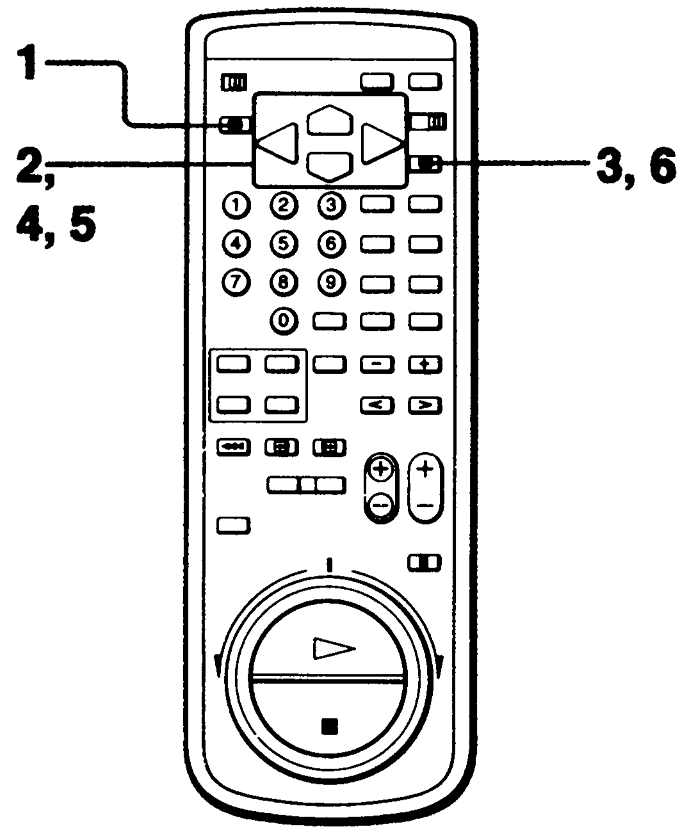
Even when the signals are received in optimal condition, the FINE TUNING indicator will not stay at the center position for channels higher or lower that the standard cable system due to the difference in the frequency.

NOTE:
Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

Using The SET UP MENU

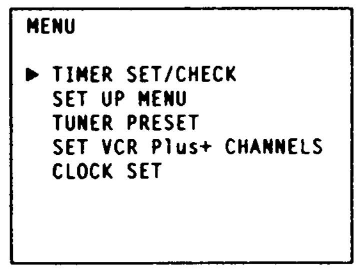
Before using your VCR, make your preferred audio and video display choices from the SET UP MENU.

Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select the items.



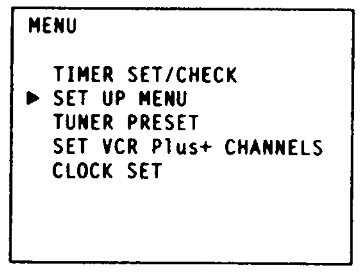
1 Press MENU.

The main MENU appears.



```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

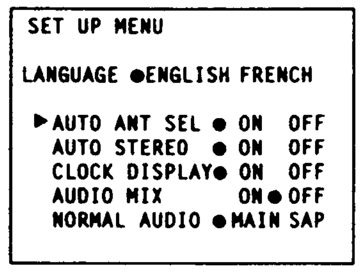
2 Press ▲ or ▼ to move the cursor (▶) to SET UP MENU.



```
MENU

  TIMER SET/CHECK
▶ SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

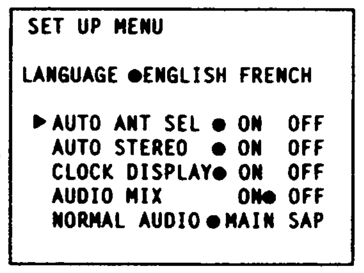
3 Press EXECUTE.

The SET UP MENU appears.



```
SET UP MENU

LANGUAGE ●ENGLISH FRENCH

▶AUTO ANT SEL ● ON  OFF
 AUTO STEREO  ● ON  OFF
 CLOCK DISPLAY● ON  OFF
 AUDIO MIX      ON● OFF
 NORMAL AUDIO ●MAIN SAP
```

4 Press ▲ or ▼ to move the cursor to the desired menu choice. (For Menu Choices, see the next page.) Next, press ◀ or ▶ to change the mode setting to ON or OFF.



```
SET UP MENU

LANGUAGE ●ENGLISH FRENCH

▶AUTO ANT SEL ● ON  OFF
 AUTO STEREO  ● ON  OFF
 CLOCK DISPLAY● ON  OFF
 AUDIO MIX      ON● OFF
 NORMAL AUDIO●MAIN SAP
```

5 Press ◀ or ▶ to move the dot (●) to the desired setting.

6 Press EXECUTE to return to the original screen.

The settings are stored. The displayed page is stored unless the power plug is disconnected.

Menu Choices

LANGUAGE (Canadian versions only)

You can preset your VCR to display screen information in either English or French.

AUTO ANT SEL (Automatic Antenna Selector)

- If your TV is connected only to VHF/UHF OUT on the VCR, set to ON.

When playing back a cassette, the picture is automatically displayed on the screen simply by selecting the channel for the VCR on the TV. To watch TV programs selected on the TV, press TV/VTR to turn off the VTR indicator in the display window.

- If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, set to OFF.

When playing back a cassette, select the input for the VCR on the TV.

To watch TV programs selected on the TV, select the tuner input.

AUTO STEREO

If a stereo program's reception is poor, set to OFF. The program is recorded in monaural but sound quality may improve. For details, see page 35.

CLOCK DISPLAY

To erase the current time and date from the on-screen display, set to OFF.

AUDIO MIX

To listen to sound recorded on both the hi-fi video track and the normal audio track of the audio tape, set to ON. For details, see page 32.

NORMAL AUDIO

When there is a SAP (Second Audio Program) broadcast, select SAP to record the SAP sound on the normal audio track. For details, see page 35.

NOTE:
The VCR automatically exits from the main MENU and SET UP MENU if you don't proceed for more than one minute.

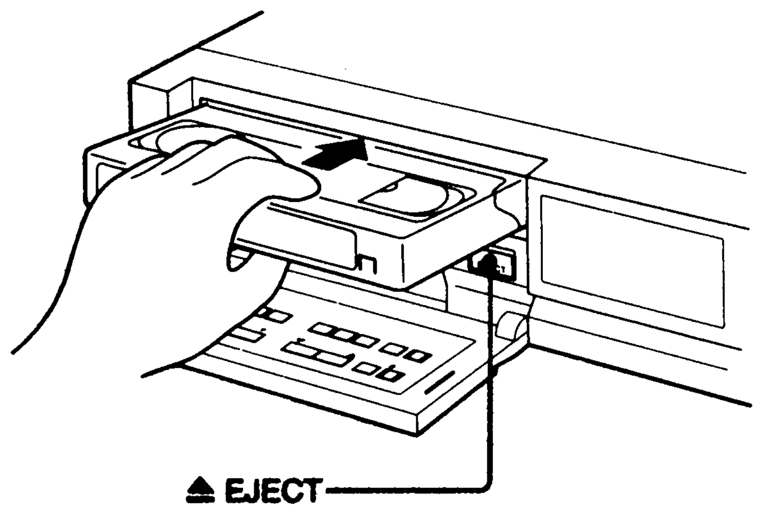
Playback

This section shows you how to play back a video cassette.

Inserting a Video Cassette

1 **Insert a video cassette as shown below.**

2 **Gently press the center of the front side of the cassette until the mechanism draws it into the compartment.**
When the cassette has been loaded, the cassette indicator (▭) lights in the display window and the VCR turns on automatically.



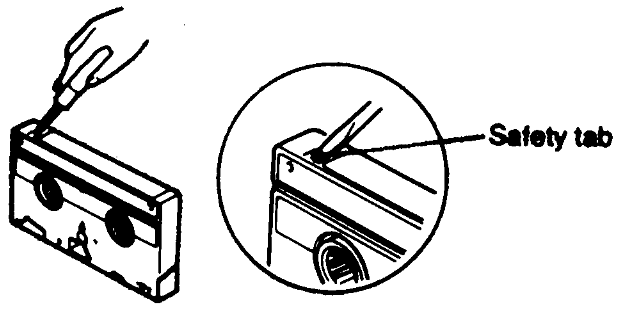
NOTE:
If you insert a cassette without a safety tab, playback starts automatically (auto playback function).

Ejecting the cassette

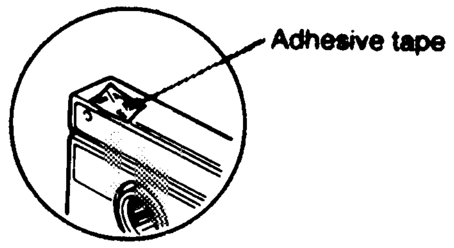
Press ≜ EJECT on the VCR. You can eject the cassette when the power is off. When you press ≜ EJECT, the power is turned on. After ejecting the cassette, the power automatically shuts off.

Protecting your cassette against accidental erasure

Cassettes have a safety tab to protect against accidental recording. Break off the safety tab with a screwdriver or other tool. If the safety tab is removed, the cassette will be ejected when you try to record on it.



To record on a cassette with the safety tab broken off, simply cover the tab hole with adhesive tape.



Maximum recording time of a cassette

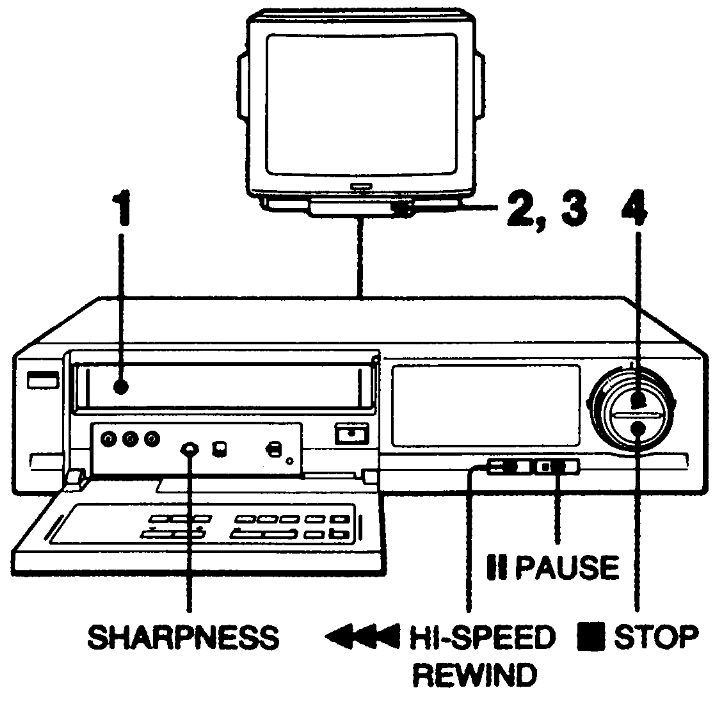
Recording in either the SP or EP mode is possible with this VCR. When recording, select the desired recording mode (SP or EP) using TAPE SPEED on the Remote Commander or the VCR. During playback, the VCR automatically detects the recording format, and then plays back the cassette in the appropriate mode. A cassette recorded in the EP mode runs three times as slowly as a cassette recorded in the SP mode. Refer to the chart below for the recording/playback times available.

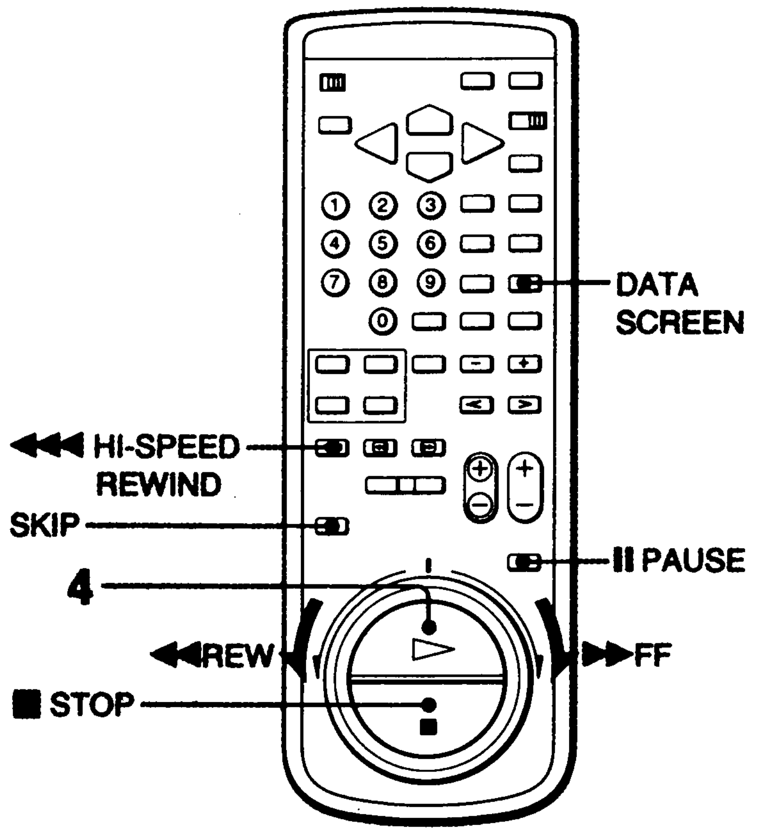
Cassette tape	Recording / Playback time	
	SP mode	EP mode
T-180	3 hr.	9 hr.
T-160	2 hr. 40 min.	8 hr.
T-120	2 hr.	6 hr.
T-60	1 hr.	3 hr.
T-30	30 min.	1 hr. 30 min.

Cassettes recorded in LP mode

Playback of cassettes recorded in LP mode is also possible with this VCR. However, playback in modes other than normal forward speed is not guaranteed. This VCR is not designed to record in the LP mode.

Playback





1 **Insert a cassette.**

2 **Turn on the TV.**

3 **If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR. If your TV is connected only to the VHF/UHF OUT on the VCR, select the channel for the VCR (CH 3 or CH 4).**

4 **Press ▷ PLAY.**

To stop playback:
Press ■ STOP.

To stop playback for a moment:
Press II PAUSE.
Press II PAUSE again or ▷ PLAY to resume playback.

To fast-forward the cassette at high speed during stop mode:
Turn the DUAL MODE SHUTTLE ring to the right (▶▶).

To rewind the cassette during stop mode:
Turn the DUAL MODE SHUTTLE ring to the left (◀◀).

To rewind the cassette at high speed:
Press ◀◀◀ HI-SPEED REWIND.

To rewind the cassette to its beginning and to playback automatically (auto playback function):
Press ▷ PLAY while depressing ◀◀◀ HI-SPEED REWIND or by using the DUAL MODE SHUTTLE ring.
You cannot use the Remote Commander for the auto playback function.

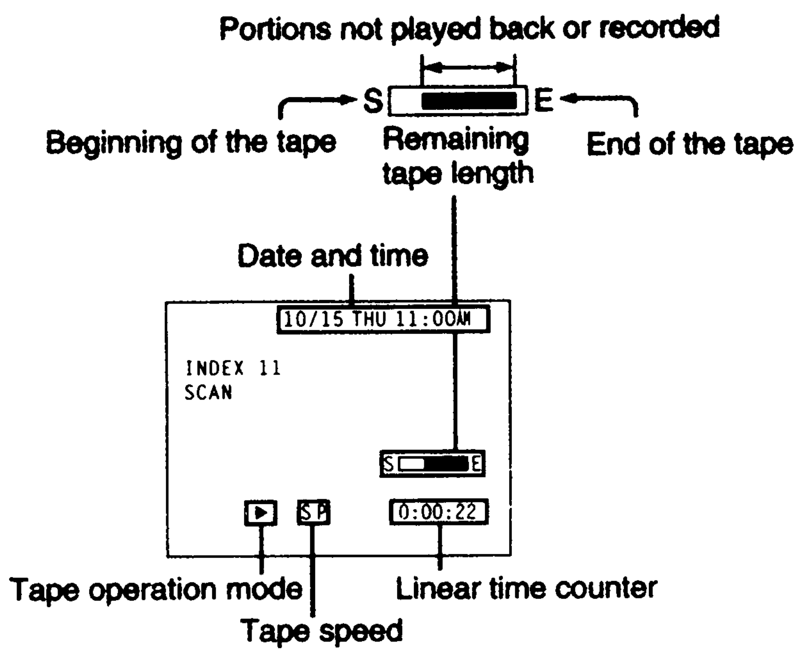
To get a sharper picture:
Turn the SHARPNESS control to SHARP.

To get a softer picture:
Turn the SHARPNESS control to SOFT.

When the cassette reaches its end:
The cassette automatically rewinds to the beginning (auto rewind), and power remains on.

The Data Screen

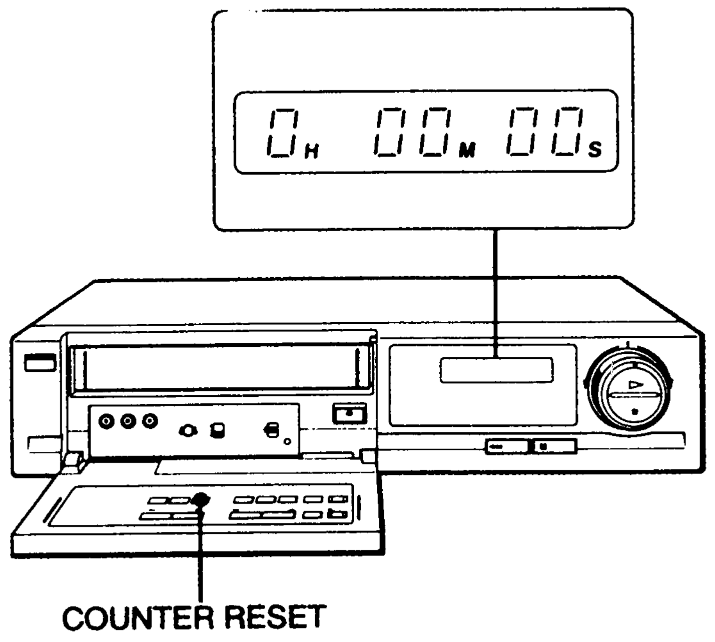
To delete or call up the data screen on the TV screen, press DATA SCREEN on the Remote Commander.



NOTES:
- The remaining tape length displayed is approximate. Therefore, use it only as an approximate reference.
- When you insert a cassette with a short tape length such as T-20, T-30 or a non-standard commercially available cassette, this indicator may not function correctly.
- The data screen display cannot be displayed on the screen during still mode, slow motion playback or high-speed playback.

Indexing Tape Contents

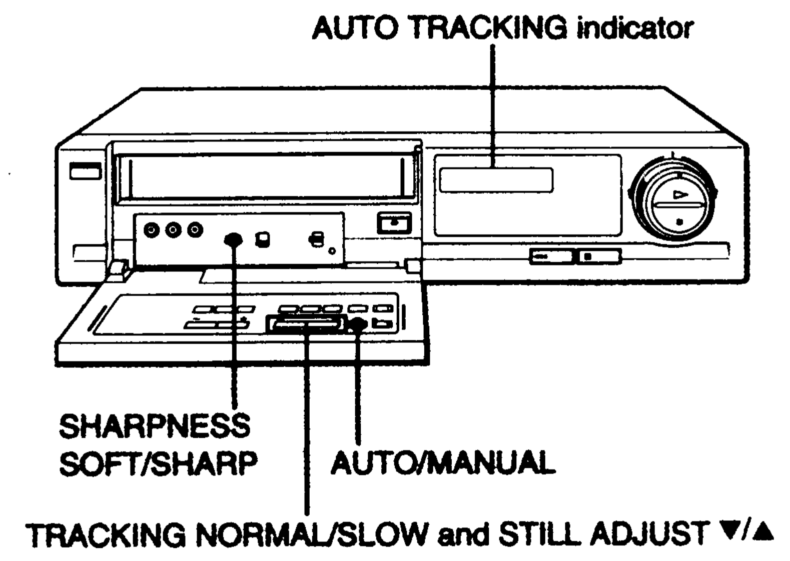
Before recording or playback, press COUNTER RESET on the VCR to reset the counter to zero. By noting the setting, you can find that point later by referring to the counter. Use the label on the cassette to list the programs and their counter readings.



NOTES ON COUNTER READING:
- After a cassette is ejected, the counter reading is retained. When a cassette is reinserted the counter returns to "0H00M00S".
- The counter does not work properly on the portions on which no recording has been made.

Playing Back Externally-Recorded Tapes

When playing back a cassette recorded on another VCR, the tracking condition is automatically adjusted. You can also adjust the tracking condition and the sharpness manually according to the following instructions.

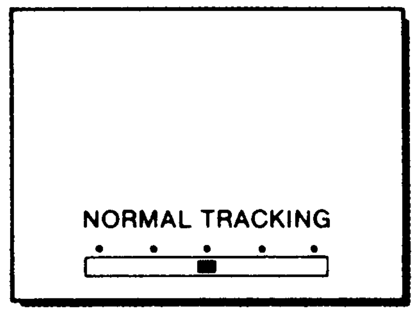


Manual tracking adjustment

When the playback picture has streaks or snow during normal playback, adjust the picture manually with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.

Press either ▲ or ▼ for the best possible picture. The tracking meter will appear on the TV screen and the AUTO TRACKING indicator will turn off.

When the manual adjustment proves unsatisfactory, press both TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲. The tracking condition will return to the center position.



Automatic tracking adjustment

The tracking condition is automatically adjusted on this VCR. The AUTO TRACKING indicator flashes while the VCR is searching for the optimal tracking condition and lights when optimum playback picture is obtained. The automatic tracking control is activated in the following conditions:

- When the cassette is inserted for the first time
- When the recording mode on the playback cassette is switched from SP to EP and back again
- When the picture is distorted by scratches on the cassette
- When the AUTO TRACKING indicator is turned on by pressing TRACKING AUTO/MANUAL after the picture is adjusted manually

Adjusting the sharpness

Turn the SHARPNESS SOFT/SHARP control toward SHARP for a sharper picture. Turn it toward SOFT for a softer picture.

NOTES:
- Auto tracking adjustment is not possible for cassettes recorded in LP mode.
- Auto tracking adjustment may be impossible and the tracking indicator may not appear on the TV screen when the recording condition of the cassette is poor.
- During auto tracking adjustment, streaks or noise may occur.
- The tracking indicator will only appear on the TV screen if the DATA SCREEN is in the ON position.

Selecting the Monitor Sound

You can play back cassettes on which stereo sound or bilingual programs are recorded.
Press AUDIO MONITOR to select the desired sound mode. Each press of the button changes the display on the VCR.

NOTE:
When you play back a cassette recorded in monaural, the sound is heard in monaural regardless of the setting of the AUDIO MONITOR.

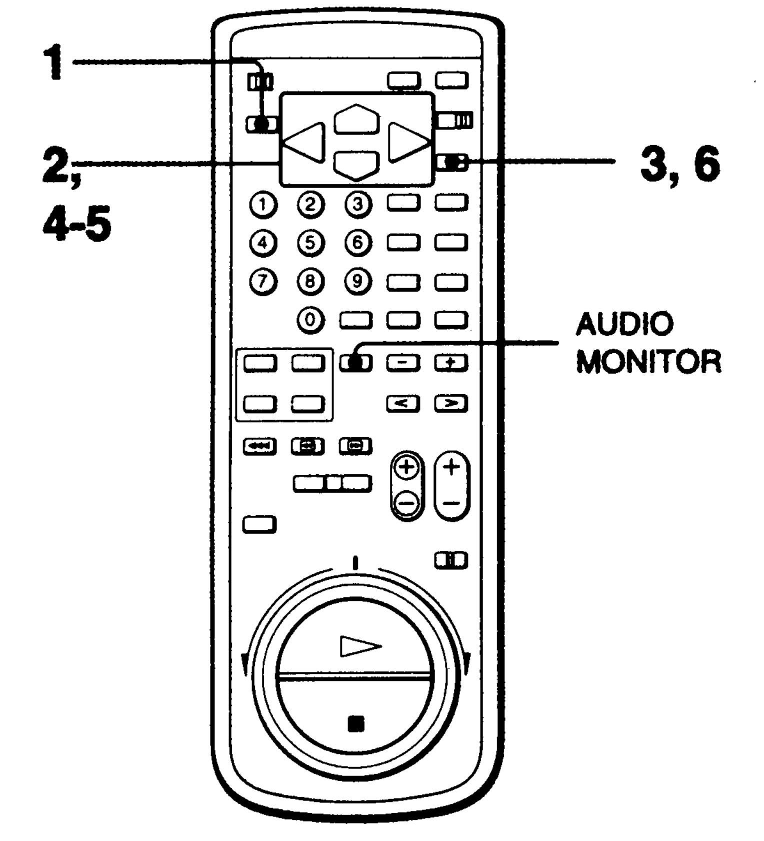
Sound Mode

Display	Sound to be heard	
	Stereo tape	**Bilingual tape**
STEREO	Stereo	Left and right channels
MAIN/L	Left channel	Left channel
SUB/R	Right channel	Right channel
None	Monaural on normal audio track	Sound on normal audio track (SAP)

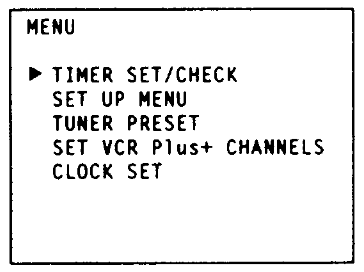
Listening to Mixed Hi-Fi and Normal Track Sound

You can hear sound recorded on the hi-fi video track and the normal audio track simultaneously. This allows you to listen to an audio-inserted cassette.

Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select items.

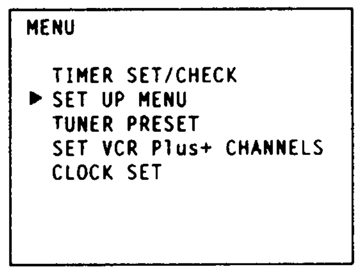


1 **Press MENU.**
The main MENU appears.



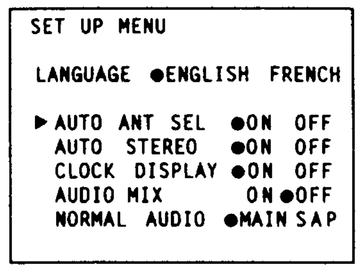
```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

2 **Press ▲ or ▼ to move the cursor (▶) to SET UP MENU.**



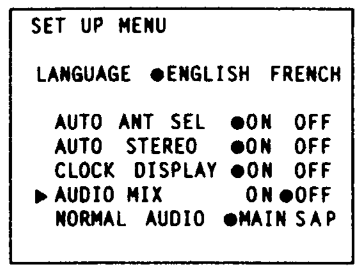
```
MENU

  TIMER SET/CHECK
▶ SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

3 **Press EXECUTE.**
The SET UP MENU appears.



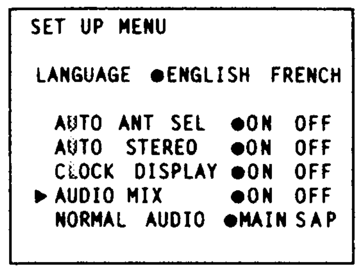
```
SET UP MENU

LANGUAGE ●ENGLISH  FRENCH

▶AUTO ANT SEL  ●ON  OFF
 AUTO STEREO   ●ON  OFF
 CLOCK DISPLAY ●ON  OFF
 AUDIO MIX      ON ●OFF
 NORMAL AUDIO  ●MAIN SAP
```

4 **Press ▲ or ▼ to move the cursor to AUDIO MIX.**



```
SET UP MENU

LANGUAGE ●ENGLISH  FRENCH

 AUTO ANT SEL  ●ON  OFF
 AUTO STEREO   ●ON  OFF
 CLOCK DISPLAY ●ON  OFF
▶AUDIO MIX      ON ●OFF
 NORMAL AUDIO  ●MAIN SAP
```

5 **Press ◀ or ▶ to move the dot (●) to ON.**



```
SET UP MENU

LANGUAGE ●ENGLISH  FRENCH

 AUTO ANT SEL  ●ON  OFF
 AUTO STEREO   ●ON  OFF
 CLOCK DISPLAY ●ON  OFF
▶AUDIO MIX     ●ON  OFF
 NORMAL AUDIO  ●MAIN SAP
```

6 **Press EXECUTE to return to the original screen.**

NOTES:
- When you set AUDIO MIX to ON, the AUDIO MONITOR button does not function.
- Reset to OFF after listening to the sound in audio mix mode.

Recording TV Programs

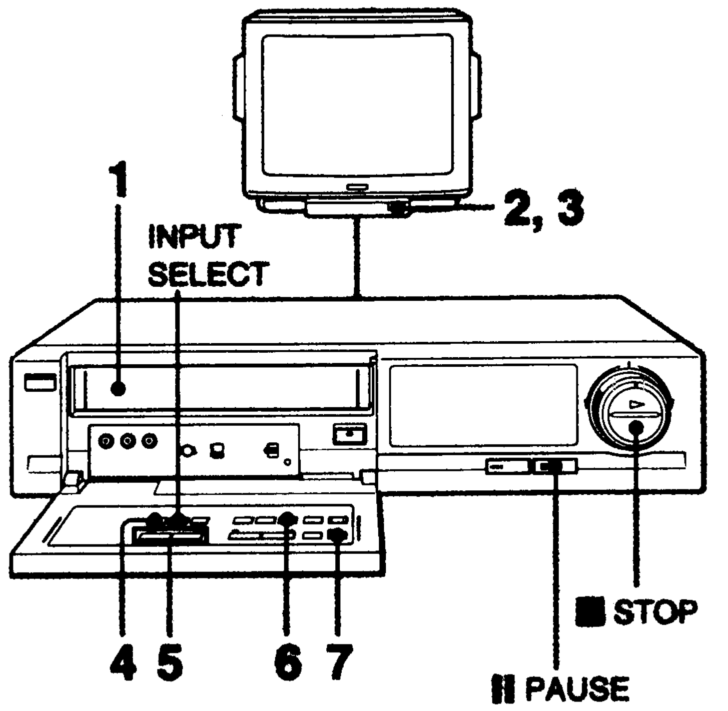
Before you begin, check the following points:

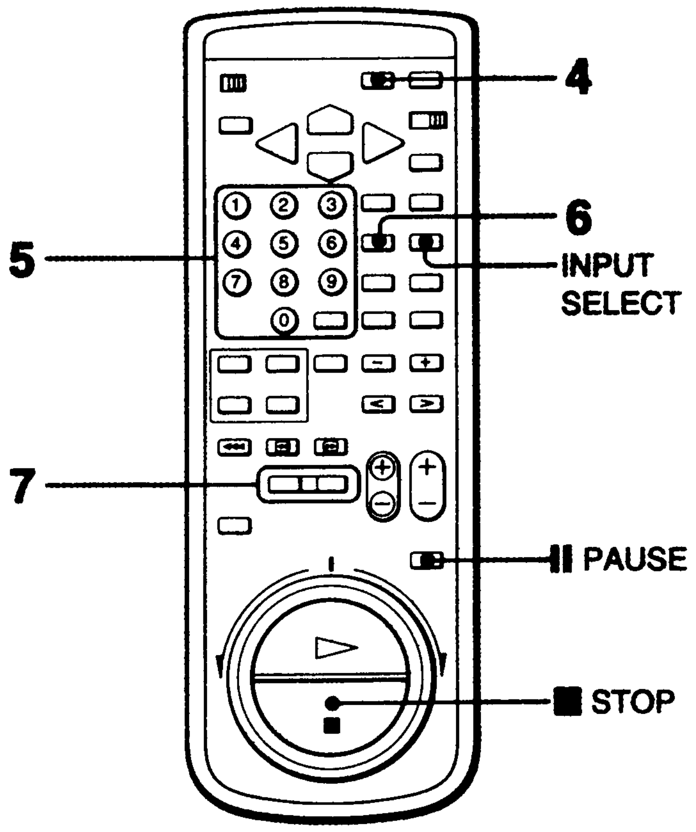
- Make sure that the connections have been made correctly (see pages 6 to 14).
- Check the input mode indicator in the display window of the VCR.

  Press INPUT SELECT to light the TUNER indicator in the display window.

CAUTION:
Television programs, films, video cassettes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization for the cable television transmission and/or program owner.

Recording TV Programs





1 **Insert a cassette.**
The VCR turns on automatically (auto power on).

2 **Turn on the TV.**

3 **If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR.**

4 **If your TV is connected only to VHF/UHF OUT, set the TV to the correct channel (CH 3 or CH 4), then press TV/VTR so that the VTR indicator lights up.**
Skip this step if your VCR is connected to both the VHF/UHF OUT and LINE OUT.

5 **Select the channel to be recorded with CHANNEL +/– or channel number buttons and ENTER.**

6 **Select SP or EP with TAPE SPEED (SP/EP).**
To select the best recording tape speed, see "Maximum Recording Time of a Cassette" on page 28.

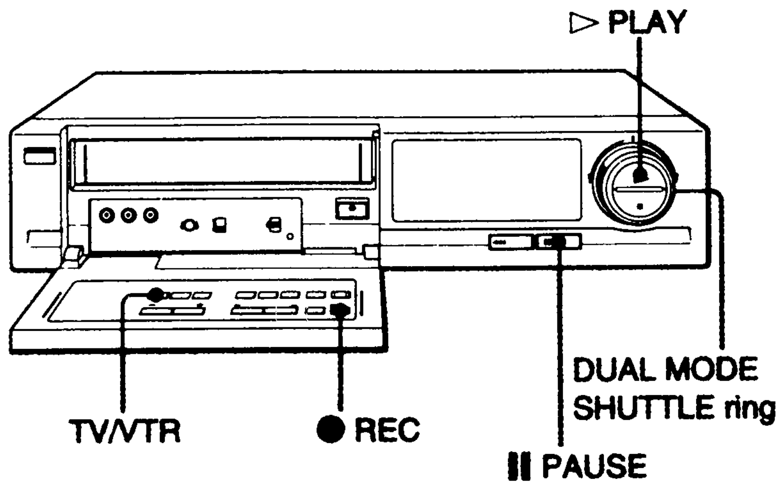
7 **Press the two ● REC buttons on the Remote Commander at the same time, or the ● REC button on the VCR.**

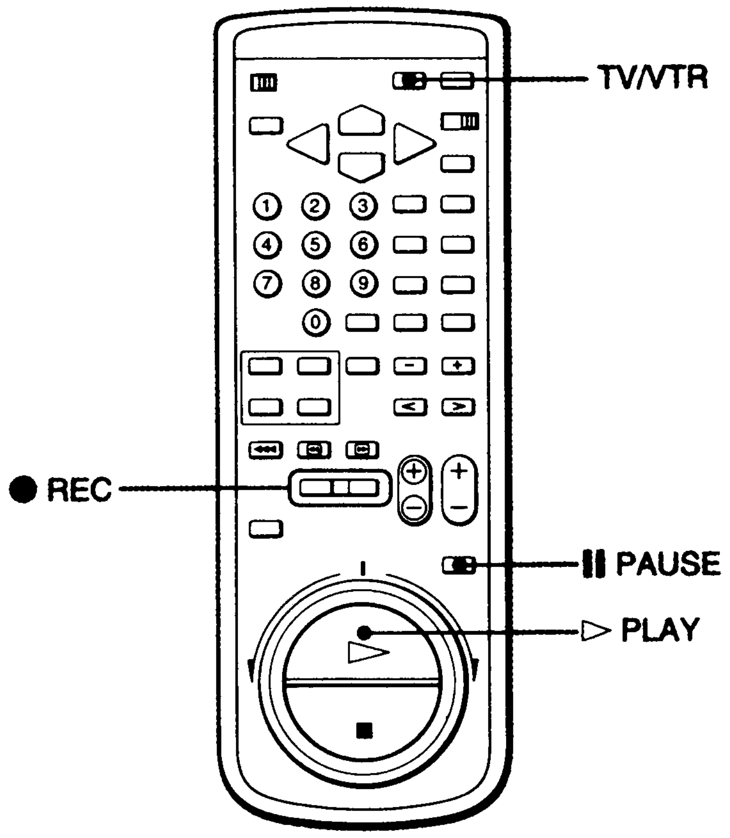
To stop recording:
Press ■ STOP.

To pause the cassette:
Press II PAUSE. To resume recording, press II PAUSE. When the recording pause mode lasts for approximately 5 minutes, the VCR enters the stop mode.

When the cassette reaches its end:
The cassette rewinds to the beginning and the power remains on.

Pausing





Technique 1

You can stop recording an unwanted scene and resume recording smoothly.

1. **Press II PAUSE when an unwanted scene appears.**
   Recording will stop and the VCR enters the recording pause mode.
2. **Press II PAUSE at the desired point to release the pause mode.**
   Recording resumes from the point set in step 1.

Technique 2

When an unwanted scene has already started recording, you can return the cassette to the desired point, have the VCR standby in the recording pause mode, and resume recording at the desired scene.

1. **Press II PAUSE to set the VCR to the recording pause mode.**
2. **Turn the DUAL MODE SHUTTLE ring to the left to search for the point from which you wish to continue recording.**
3. **Release the DUAL MODE SHUTTLE ring at the desired point.**
   After an instant in still mode, the VCR automatically enters the recording pause mode.
4. **Press II PAUSE.**
   Recording resumes.

Recording with the TV Off

Turn off the power of the TV or color monitor.
There will be no interference with the recording.

Watching One TV Program While Recording Another

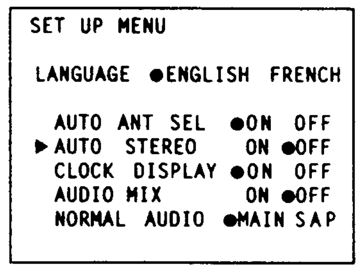
1. **Press TV/VTR so that the VTR indicator goes off.**
2. **Select the channel you want to watch on the TV.**

VTR Indicator	Picture on the TV Screen
Lit	Channel selected by the VCR or the playback picture of the VCR
Unlit	Channel selected by the TV

Recording Multi-channel TV Sound (MTS) Broadcasts

To record a stereo broadcast:

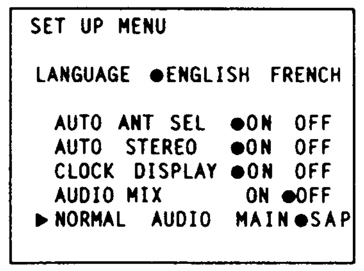
When a stereo broadcast program is received, the STEREO indicator appears in the display window of the VCR. The stereo program is automatically recorded in stereo. If a stereo program's reception is poor, set AUTO STEREO to OFF in the SET UP MENU. (See page 27.) The sound is heard in monaural but the noise is reduced.



```
SET UP MENU

LANGUAGE ●ENGLISH FRENCH

  AUTO ANT SEL   ●ON  OFF
▶ AUTO STEREO     ON ●OFF
  CLOCK DISPLAY  ●ON  OFF
  AUDIO MIX       ON ●OFF
  NORMAL AUDIO  ●MAIN SAP
```

To record SAP (Second Audio Program) broadcast:

Normally, set NORMAL AUDIO to MAIN in the SET UP MENU. The main sound is recorded on the normal track. To record the SAP sound on the normal audio track, set NORMAL AUDIO to SAP in the SET UP MENU.



```
SET UP MENU

LANGUAGE ●ENGLISH FRENCH

  AUTO ANT SEL   ●ON  OFF
  AUTO STEREO    ●ON  OFF
  CLOCK DISPLAY  ●ON  OFF
  AUDIO MIX       ON ●OFF
▶ NORMAL AUDIO   MAIN●SAP
```

To monitor the SAP sound during recording, press AUDIO MONITOR to light the SAP indicator in the display window.

NOTES:
- When not recording an SAP broadcast, select MAIN. If you select SAP, no sound is recorded on the normal audio track.
- When the TV is connected only to the VHF/UHF OUT on the VCR, you cannot hear the program in stereo.

Timer Recording

The timer recording function lets you preset your VCR to record up to eight programs within a one-month period. You'll do this procedure from the TIMER SET/CHECK display on your TV.

As a First Step

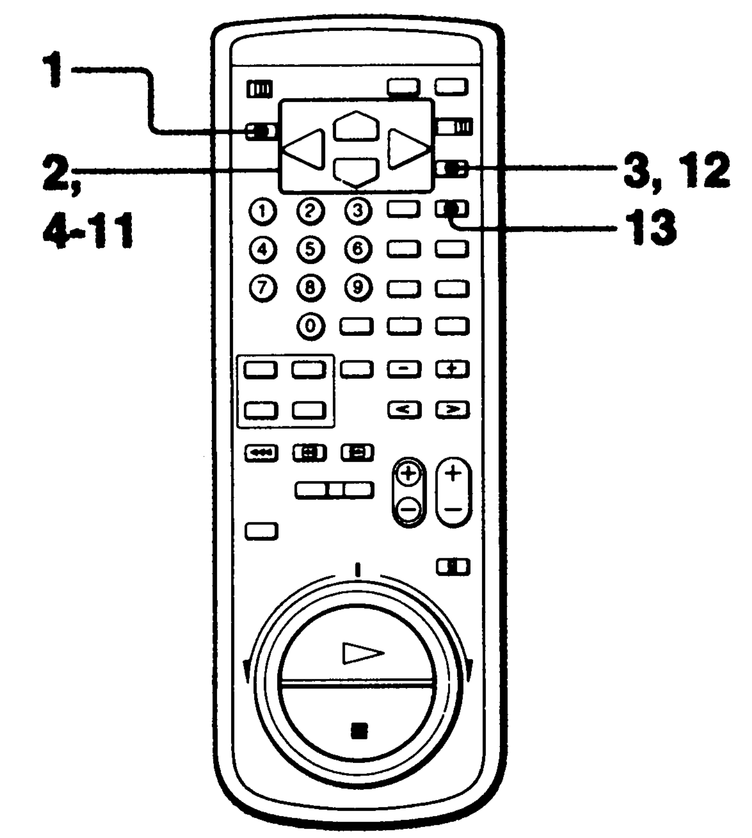
Before setting the timer, make sure that:

- The time and date clock is set correctly. (See "Setting the Time and Date" on page 20.)
- The cassette is long enough to record all the programs.
- The safety tab on the cassette is intact. If you insert a cassette with no safety tab and press TIMER REC (ON/OFF), the cassette automatically ejects from the VCR.
- The VCR and TV are both turned on.

Setting The Timer

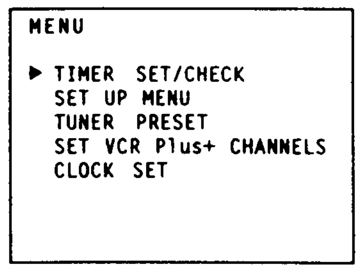
EXAMPLE: Here's how to record a program broadcast on channel 26 from 9:00 pm to 10:55 pm on Friday, July 10 in EP mode:

Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select items.



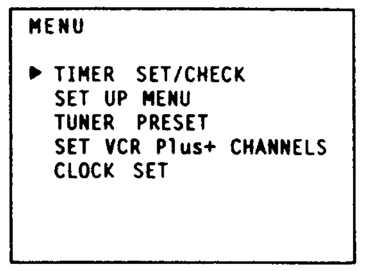
1 Press MENU.

The main MENU appears.



```
MENU
▶ TIMER  SET/CHECK
  SET UP MENU
  TUNER  PRESET
  SET VCR Plus+ CHANNELS
  CLOCK  SET
```

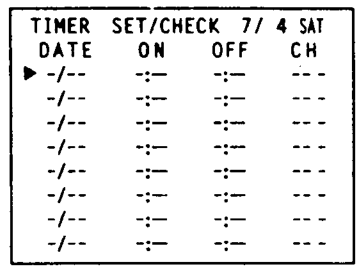
2 Press ▲ or ▼ to move the cursor (▶) to TIMER SET/CHECK.



```
MENU
▶ TIMER  SET/CHECK
  SET UP MENU
  TUNER  PRESET
  SET VCR Plus+ CHANNELS
  CLOCK  SET
```

3 Press EXECUTE.

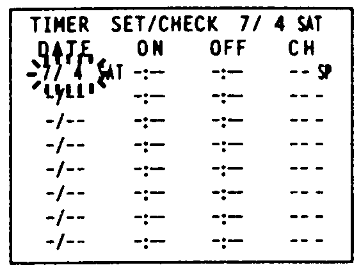
The TIMER SET/CHECK display appears on the screen. A short beep alerts you if the clock is not set properly. To reset the clock, refer to "Setting the Time and Date" (page 20).



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
▶ -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
  -/--    -:--   -:--   ---
```

4 Press ▶.

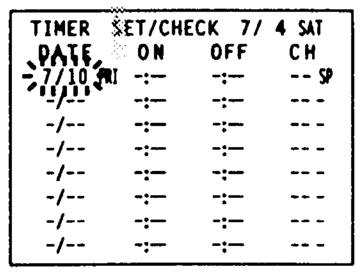
Make sure that today's date is flashing. If it isn't, reset the clock to the correct time. See "Setting the Time and Date" (page 20).



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/ 4 SAT -:--   -:--   -- SP
          -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

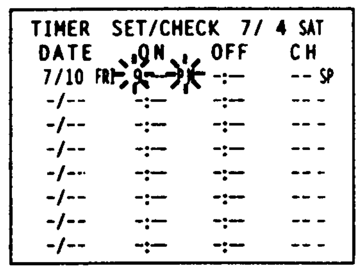
5 Press ▲ to set the month and date to 7/10 FRI.

The day of the week is automatically set.



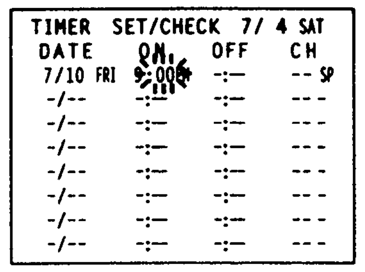
```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/10 FRI -:--   -:--   -- SP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

6 Press ▶ to flash the hours section under "ON" then ▲ or ▼ until 9 PM appears.



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/10 FRI 9----9 -:--   -- SP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

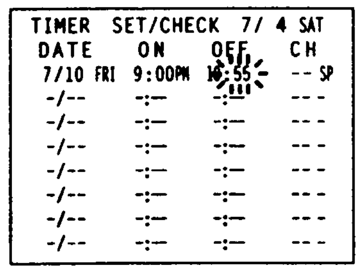
7 Press ▶ to flash the minutes under "ON", then ▲ or ▼ until 00 appears.



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/10 FRI 9:00   -:--   -- SP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

8 Press ▶.

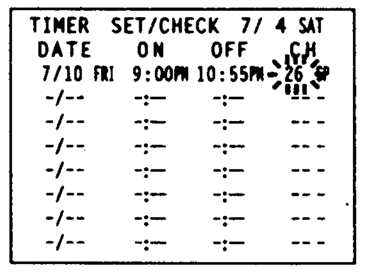
The cursor blinks in the time field under the "OFF" column. Set the time to finish recording, referring to steps 6 and 7.



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/10 FRI 9:00PM 10:55  -- SP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

9 Press ▶ to flash the "CH" field, then press ▲ or ▼ until 26 appears.

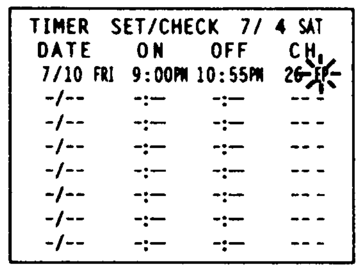
Only the channels set in the VCR will appear. You can also use the CHANNEL +/– or channel number buttons.



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/10 FRI 9:00PM 10:55PM 26 SP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

10 Press ▶ or TAPE SPEED to flash the recording speed position, then ▲ or ▼ until EP appears.

To change or correct a setting before entering it, press ◀ to return to the item you wish to change.

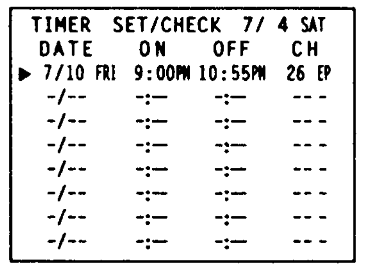


```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
 7/10 FRI 9:00PM 10:55PM 26 EP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

11 Press ▶ to store the setting.

When all of the settings stop flashing and display a ▶ in the leftmost column, you've completed the setting.

To preset another program, move the cursor to the next line and repeat steps 4 to 11.



```
TIMER  SET/CHECK  7/ 4 SAT
 DATE     ON    OFF    CH
▶ 7/10 FRI 9:00PM 10:55PM 26 EP
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
 -/--     -:--   -:--   ---
```

12 Press EXECUTE.

The message "Please push TIMER REC to set timer" appears on the TV screen.

13 Press TIMER REC (ON/OFF).

The VCR enters the timer recording standby mode and the TIMER REC (recording) indicator in the display window lights up.

To stop timer recording:

To stop timer recording while a program is being recorded, press TIMER REC (ON/OFF).

NOTES:

- To change or correct the setting before completing it, press ◀ to return to the item you wish to change.
- To record video sources from LINE IN 1 or 2 jacks, press INPUT SELECT in step 4 to 11 to move the screen cursor to LINE 1 or 2 in the "CH" field. This cursor returns to channel number on the third press.
- If you don't proceed for more than one minute, the VCR automatically exits from the TIMER SET/CHECK menu.

Daily/Weekly Recording

You can preset your VCR for daily or weekly recording. Daily recording records the same program every day of the week while weekly recording records the same program on the same day, every week. Follow steps 1 to 4 in "Setting the Timer" (page 36).
Each time you press ▼, the indicator under the "DATE" column changes to one of these choices:

SUN—SAT (Every day of the week)
⬇
MON—SAT (Every day except Sunday)
⬇
MON—FRI (Every day except Saturday and Sunday)
⬇
EVERY SAT
.
.
.
EVERY TUE
⬇
EVERY MON
⬇
EVERY SUN

When you set and transmit your programs to the VCR, the corresponding indicator lights up in the display window.

The Timer Recording Standby Mode

When you return the VCR to the timer recording standby mode, you can record any previously preset programs. The VCR turns on automatically to record the first preset program. When it finishes recording, the power automatically shuts off.
To stop timer recording, press TIMER REC (ON/OFF).

Buttons Operable During Timer Recording

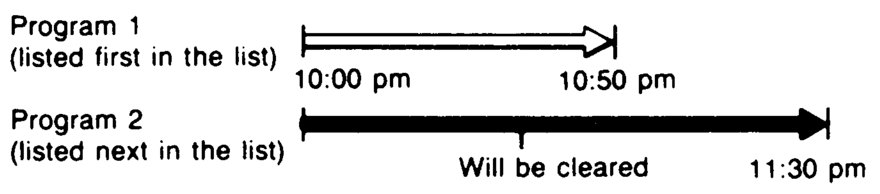
TIMER REC (ON/OFF)	To stop timer recording. (See "Indexing Tape Contents," page 30.)
COUNTER RESET	(See "Indexing Tape Contents," page 30.)
TV/VTR	(See "Watching One TV Program While Recording Another," page 35.)
DATA SCREEN	(See "The Data Screen," page 30.)
MENU	For checking the programs only. (See "Checking the Timer Settings," page 40.)

NOTE:
If a power interruption occurs during timer recording, recording will stop and your VCR will turn off. If power is restored within three hours, and it's before the recording end time, recording will start again from that point. If the interruption lasts for more than three hours, any presettings will be erased and you'll need to reset the time and date for your programs. Note that the tape counter will return to "0H00M00S".

Overlapping Timer Recordings

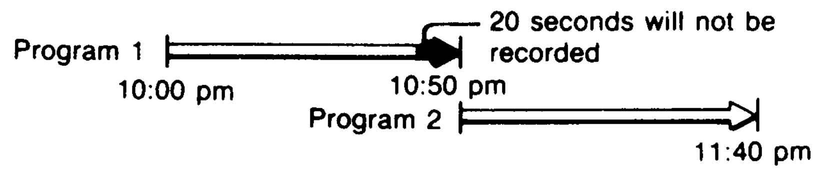
Case 1
If you preset two programs to record at the same time . . .

The program listed first on the TIMER SET/CHECK display has priority over the other programs. The timer settings for lower priority programs will be deleted from the TIMER SET/CHECK display when recording begins for the first program.



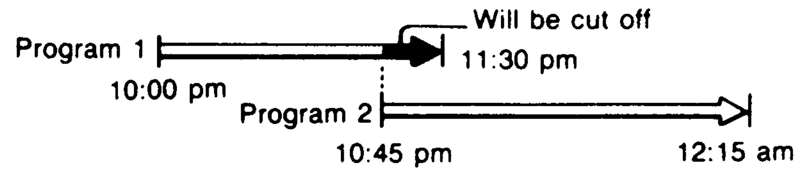
Case 2
If you set program 2 to record at the same time you set program 1 to finish recording . . .

The last 20 seconds of program 1 will not be recorded.



Case 3
If you set program 2 to record before program 1 has finished recording . . .

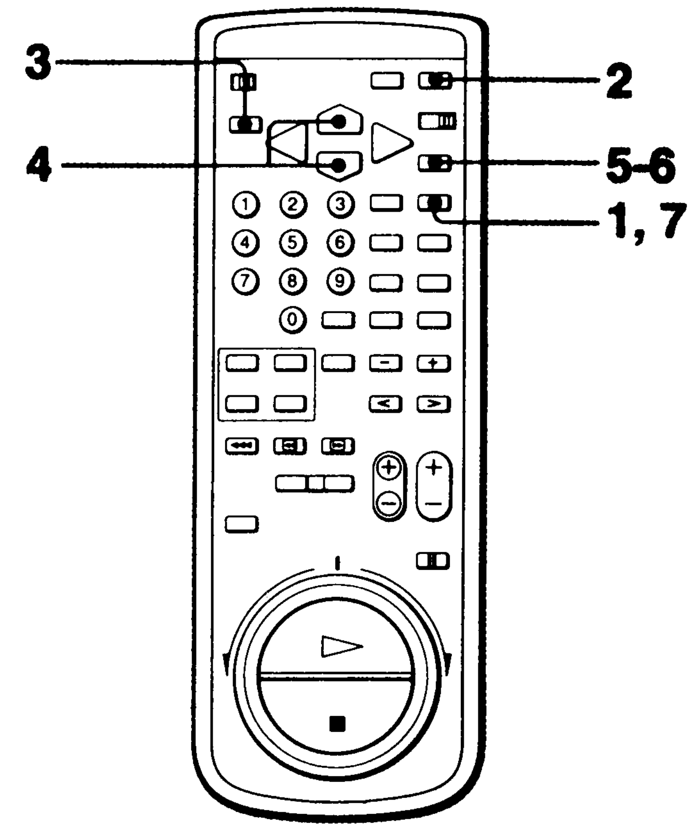
Program 2 will begin recording before program 1 has finished.



Checking the Timer Settings

Here's how to display your timer settings to confirm the programs you wish to record.

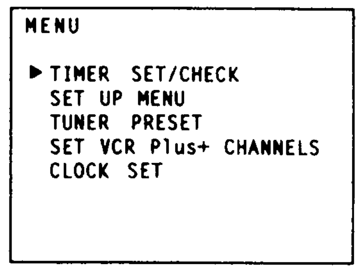
Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select items.



1 Press TIMER REC (ON/OFF).
The TIMER REC (recording) indicator in the display window turns off.

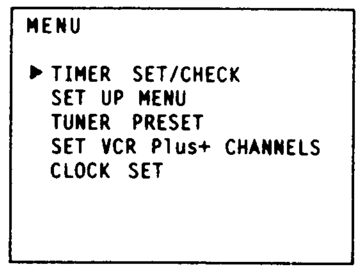
2 Press POWER.

3 Press MENU.
The main MENU appears.



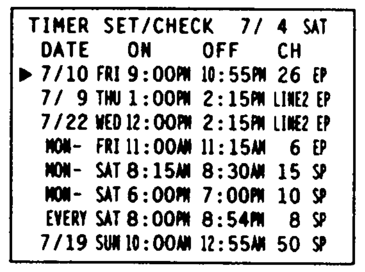
```
MENU

▶ TIMER  SET/CHECK
  SET UP MENU
  TUNER  PRESET
  SET VCR Plus+ CHANNELS
  CLOCK  SET
```

4 Press ▲ or ▼ to move the cursor (▶) to TIMER SET/CHECK.



```
MENU

▶ TIMER  SET/CHECK
  SET UP MENU
  TUNER  PRESET
  SET VCR Plus+ CHANNELS
  CLOCK  SET
```

5 Press EXECUTE.
The TIMER SET/CHECK display appears.



```
TIMER SET/CHECK  7/ 4 SAT
 DATE     ON      OFF    CH
▶7/10 FRI 9:00PM 10:55PM 26 EP
 7/ 9 THU 1:00PM  2:15PM LINE2 EP
 7/22 WED 12:00PM 2:15PM LINE2 EP
  MON- FRI 11:00AM 11:15AM  6 EP
  MON- SAT 8:15AM  8:30AM 15 SP
  MON- SAT 6:00PM  7:00PM 10 SP
  EVERY SAT 8:00PM 8:54PM  8 SP
 7/19 SUN 10:00AM 12:55AM 50 SP
```

6 Press EXECUTE to return to the original screen.

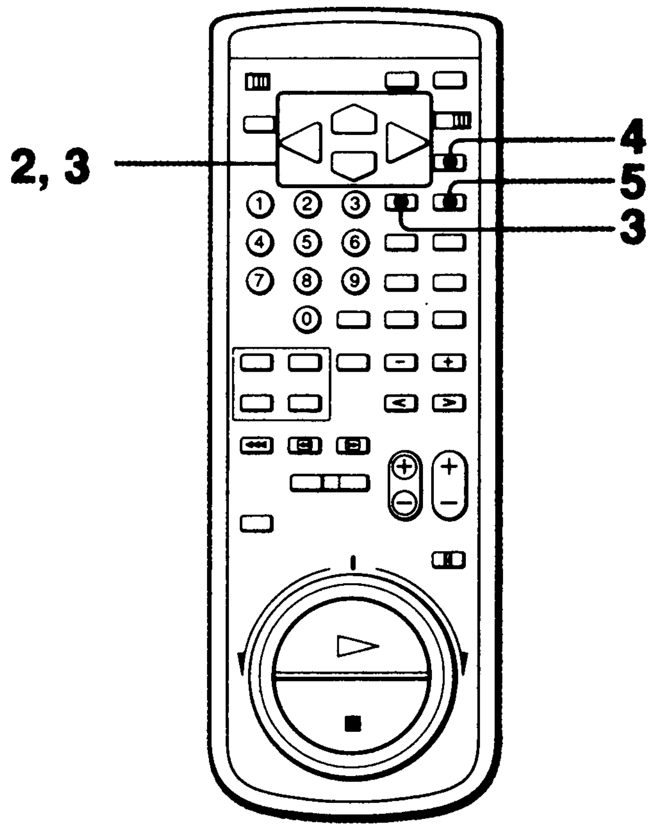
7 Press TIMER REC (ON/OFF).
The VCR returns to the timer recording standby mode.

NOTES:
- If you set a program to record only one time, that setting is erased from the TIMER SET/CHECK display when the recording has finished.
- To check the timer settings during timer recording, follow steps 3 to 6 above.

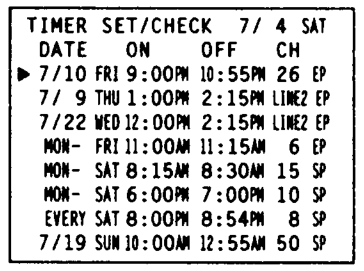
Changing or Cancelling the Timer Settings

Here's how to change or cancel any timer settings from the TIMER SET/CHECK display:

Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select items.

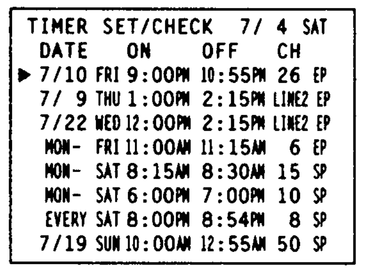


1 Display the TIMER SET/CHECK menu on the TV screen by following the procedures outlined in "Checking the Timer Settings" on page 40.



```
TIMER SET/CHECK  7/ 4 SAT
 DATE     ON      OFF    CH
▶7/10 FRI 9:00PM 10:55PM 26 EP
 7/ 9 THU 1:00PM  2:15PM LINE2 EP
 7/22 WED 12:00PM 2:15PM LINE2 EP
  MON- FRI 11:00AM 11:15AM  6 EP
  MON- SAT 8:15AM  8:30AM 15 SP
  MON- SAT 6:00PM  7:00PM 10 SP
  EVERY SAT 8:00PM 8:54PM  8 SP
 7/19 SUN 10:00AM 12:55AM 50 SP
```

2 Press ▲ or ▼ to move the cursor (▶) to the program you wish to change or cancel.



```
TIMER SET/CHECK  7/ 4 SAT
 DATE     ON      OFF    CH
▶7/10 FRI 9:00PM 10:55PM 26 EP
 7/ 9 THU 1:00PM  2:15PM LINE2 EP
 7/22 WED 12:00PM 2:15PM LINE2 EP
  MON- FRI 11:00AM 11:15AM  6 EP
  MON- SAT 8:15AM  8:30AM 15 SP
  MON- SAT 6:00PM  7:00PM 10 SP
  EVERY SAT 8:00PM 8:54PM  8 SP
 7/19 SUN 10:00AM 12:55AM 50 SP
```

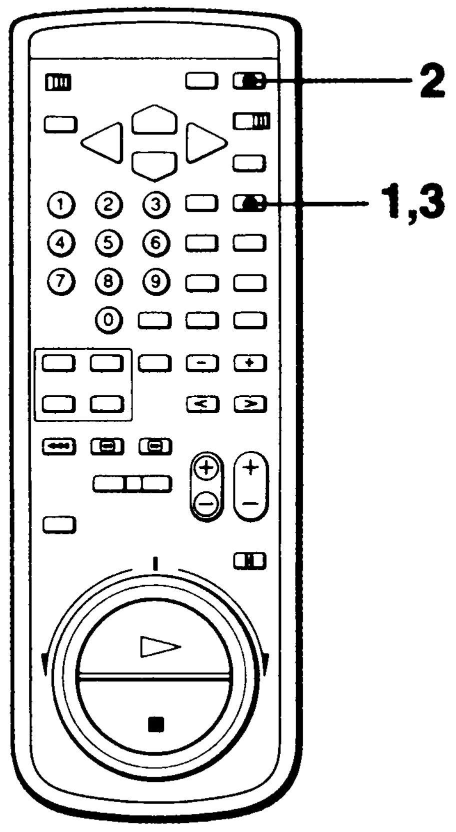
3 To change a program, select the item to be changed by pressing ◀ or ▶, then make changes by pressing ▲ or ▼.
To cancel it, press TIMER CLEAR.
Repeat this step to change or cancel other settings.

4 Press EXECUTE.
This stores the changes and returns you to the original screen.

5 Press TIMER REC (ON/OFF).
This returns you to the timer recording standby mode.

Using the VCR Before Timer Recording Starts

If you want to use your VCR while it's in the timer recording standby mode, you must first turn off the TIMER REC (recording) indicator in the display window. Here's how:



1 Press TIMER REC (ON/OFF).
The TIMER REC (recording) indicator in the display window turns off and the VCR leaves the timer recording standby mode.

2 Press POWER.
The VCR is ready to use.

3 After using the VCR, press TIMER REC (ON/OFF).
The VCR returns to the timer recording standby mode and the TIMER REC (recording) indicator lights up.

Introducing VCR Plus+

VCR Plus+ is a new feature used in Sony VCRs that simplifies the task of programming your VCR to make unattended recordings. Here's how it works:

Whenever you want to record a TV program, all you need to do is to look up the program's "PlusCode", a number assigned to each program that's published in the TV section of most newspapers, cable TV listings, and even *TV Guide* magazine.

PlusCode

5:30 **14** MOVIE — Musical (2hrs.) 33044
2 SPORTS — Golf (1hr. 25min.) 42060
CNN — NEWS 9974
6:30 **2** **3** **4** DRAMA — Comedy (2hrs.) 17390
5 SCIENCE AND TECHNOLOGY
(1hr. 15min.) 73457

Then, just enter the number of the program you want—using the Remote Commander, if you wish—and the VCR is automatically programmed to record that show. It's that simple. With VCR Plus+, you no longer have to go through a lengthy and often repetitive procedure when you set start and stop times, channel numbers, and dates. All this information is automatically sent to your VCR when you enter the program's PlusCode!

Of course, there's some setup you'll need to do before you use VCR Plus+ for the first time. But after this initial setup, just think of how much easier it'll be to record your favorite TV programs, cable movies, and sporting events—all with the touch of a few buttons. VCR Plus+ makes programming your VCR easier than ever!

NOTE:
If PlusCodes aren't yet available in your area, they'll probably be introduced soon. Check with your local newspaper or cable TV company for details.

VCR Plus+ Setup Instructions

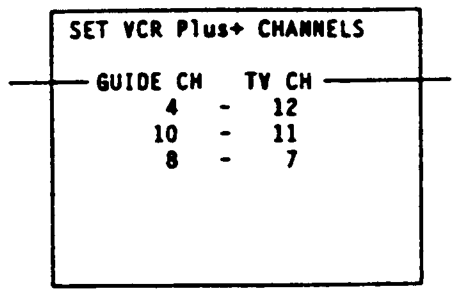
Setting up your VCR to use VCR Plus+ involves coordinating the TV channel number (the number you turn to on your TV or VCR to watch a program) with the guide channel (the number that's assigned to that channel in your program guide).

If you don't have cable TV (i.e., if your TV receives its signal from an antenna only), the TV channel number and the guide channel number will probably be the same, in which case you'll only have to check that the two numbers match. For numbers that don't match, you must first perform the procedures that follow to get these channel numbers synchronized with each other.

To get the guide channel numbers, find the Channel Line-up Chart in the program guide for your area that features VCR PlusCodes. It usually looks like the example to the right.

If you have cable TV, you should theh get the TV channel numbers for each channel from your cable company. (You may already know them.) Then for channel numbers that are different, enter the program guide channels (from the Program Guide), on the left, and the actual TV channels (from your cable system), on the right, as shown on page 44.

Program listing guide channel



```
SET VCR Plus+ CHANNELS

GUIDE CH   TV CH
    4  -  12
   10  -  11
    8  -   7
```

Your actual TV channel

Example of "Channel Line-up Chart" for Cable TV

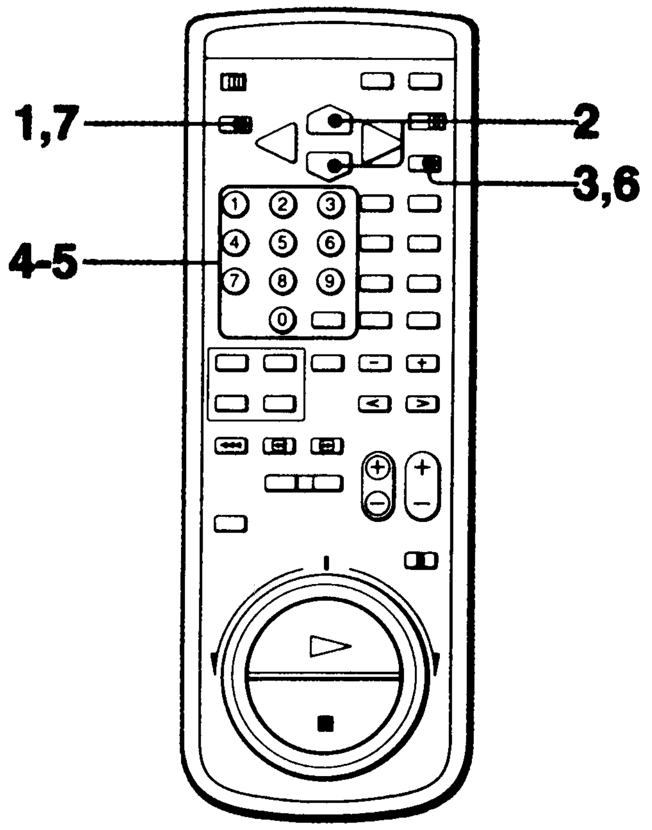
CABLE TV		Guide channel number
A&E	Arts & Entertainment Network	39
AMC	American Movie Classics	35
BRV	Bravo (program grids only)	54
CNN	Cable News Network	42
CSP	C-SPAN	28
DIS	The Disney Channel	53
DSC	The Discovery Channel	37
ESN	ESPN	34
FAM	The Family Channel	47
HBO	Home Box Office	33
LIF	Lifetime	46
MAX	Cinemax	45
MSG	Madison Square Garden Network	19
MTV	Music Television	48
NIK	Nickelodeon	38
SC	Sports Channel	59
SCA	Sports Channel America	70
SHO	Showtime	41
TBS	TBS SuperStation	43
TMC	The Movie Channel	58
TNN	The Nashville Network	49
TNT	Turner Network Television	52
USA	USA Network	44

For each channel your VCR receives, use the Channel Line-Up Chart to check that the channel numbers match. For example, if HBO is listed in the Channel Line-Up Chart on channel 33, and your VCR receives HBO on channel 15, you need to coordinate these numbers using the following procedures. For channels in which the numbers are the same (for example, if your VCR receives HBO on channel 33, and the guide channel number is 33), you can skip these procedures.

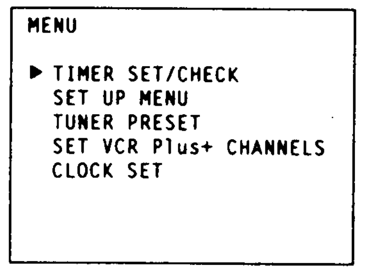
Example:

Guide Channel (from "Channel Line-Up Chart")	TV Channel
33 (Home Box Office)	15

Use ▲ and ▼ to move the cursor.
Use ◀ and ▶ to select items.

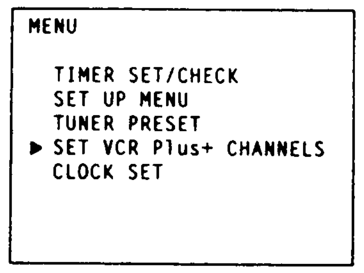


1 **Press MENU.**
The main MENU appears.



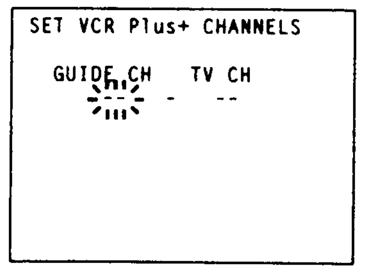
```
MENU

▶ TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  SET VCR Plus+ CHANNELS
  CLOCK SET
```

2 **Press ▼ or ▲ to move the cursor (▶) to SET VCR Plus+ CHANNELS.**



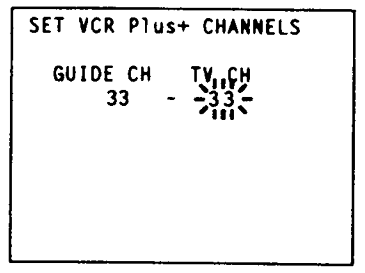
```
MENU

  TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
▶ SET VCR Plus+ CHANNELS
  CLOCK SET
```

3 **Press EXECUTE.**
The SET VCR Plus+ CHANNELS menu appears.
The "GUIDE CH" field blinks.



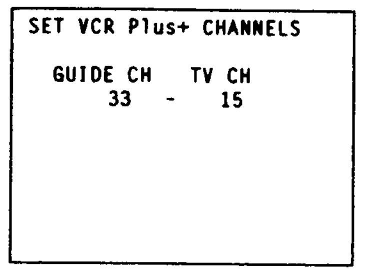
```
SET VCR Plus+ CHANNELS

GUIDE CH   TV CH
   -    -   --
```

4 **In the "GUIDE CH" field, enter 33 (the number assigned to this channel in the Channel Line-Up Chart) and press ENTER.**
The "TV CH" field starts to blink.



```
SET VCR Plus+ CHANNELS

GUIDE CH   TV CH
  33    -   33
```

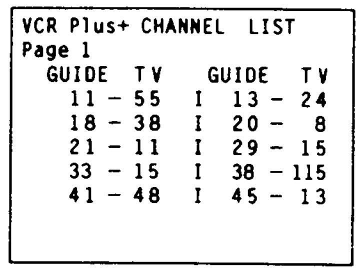
5 **In the "TV CH" field, enter 15 (the number to which you tune your VCR to watch this channel) and press ENTER.**



```
SET VCR Plus+ CHANNELS

GUIDE CH   TV CH
  33    -   15
```

NOTE:
The TV Channel setting will be different whether you use cable TV or not. Please refer to "Preparation" on page 6.

6 **For each channel in which the TV channel differs from the guide number, repeat steps 4 and 5, using the menus that are displayed.**
To check your channel settings, press EXECUTE.



```
VCR Plus+ CHANNEL  LIST
Page 1
  GUIDE  TV    GUIDE  TV
    11 - 55  I  13 - 24
    18 - 38  I  20 -  8
    21 - 11  I  29 - 15
    33 - 15  I  38 - 115
    41 - 48  I  45 - 13
```

7 **When you've finished, press MENU to exit.**

Recording Programs Using VCR Plus+

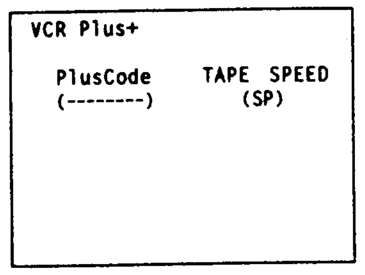
To use VCR Plus+ to record programs, all you need is the program's PlusCode, which you'll find in the program listings in your local newspaper, cable TV guide, or *TV Guide* magazine.
For example, to record the following program, just use the following procedures:

PlusCode

EXAMPLE: 13 **MOVIE**---Comedy (2hrs.) 53292

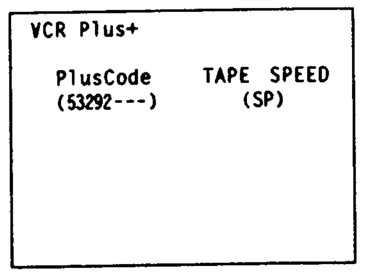
NOTE:
You can set the program without opening the VCR Plus+ menu. Refer to the display window on the VCR.

1 **Press VCR Plus+.**
The VCR Plus+ TIMER SET menu appears.



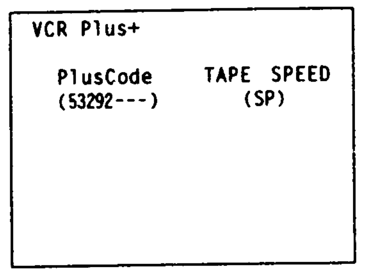
```
VCR Plus+

PlusCode     TAPE SPEED
(--------)     (SP)
```

2 **Enter 53292 (the program's PlusCode) in the PlusCode field.**
If you make a mistake, press TIMER CLEAR and enter the PlusCode again.



```
VCR Plus+

PlusCode     TAPE SPEED
(53292---)     (SP)
```

3 **To select the cassette's recording speed (SP or EP), press TAPE SPEED.**
Unless you change the cassette speed, SP is used. See "Maximum recording time of a cassette" on page 28 for information about cassette speeds.

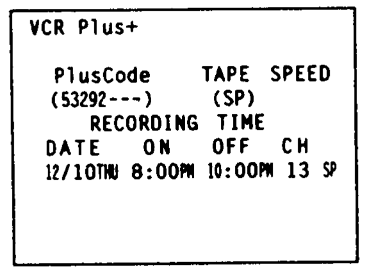


```
VCR Plus+

PlusCode     TAPE SPEED
(53292---)     (SP)
```

4 **Press ONCE, DAILY, or WEEKLY on the Remote Commander.**
See the following chart for details of these options.

ONCE:	Records scheduled programs one time only.
WEEKLY:	Records every week at the same scheduled time.
DAILY M-F:	Records Monday to Friday at the same scheduled time.

The VCR Plus+ menu displays the recording information: date, program start and stop times, channel number, and tape speed.
If you make a mistake, press TIMER CLEAR, and start from the beginning.



```
VCR Plus+

 PlusCode    TAPE SPEED
(53292---)    (SP)
    RECORDING TIME
DATE    ON     OFF    CH
12/10THU 8:00PM 10:00PM 13 SP
```

5 **If you want to set another program, repeat steps 2 to 5.**

6 **Insert a cassette into your VCR.**

7 **Press TIMER REC (ON/OFF) to set the VCR's recording timer.**
The VCR enters the timer recording standby mode. Your VCR is now set up to record the programs you've selected. The VCR will turn on automatically, record the program, and then turn off until the next programmed show is ready for broadcast.

For checking, changing, cancelling the settings, see pages 40 and 41.

NOTES:
You can't set the timer using PlusCodes in the following cases:
- When the VCR is turned off
- While the VCR is timer-recording or quick-timer recording mode
- When the VCR is in the timer-recording standby mode

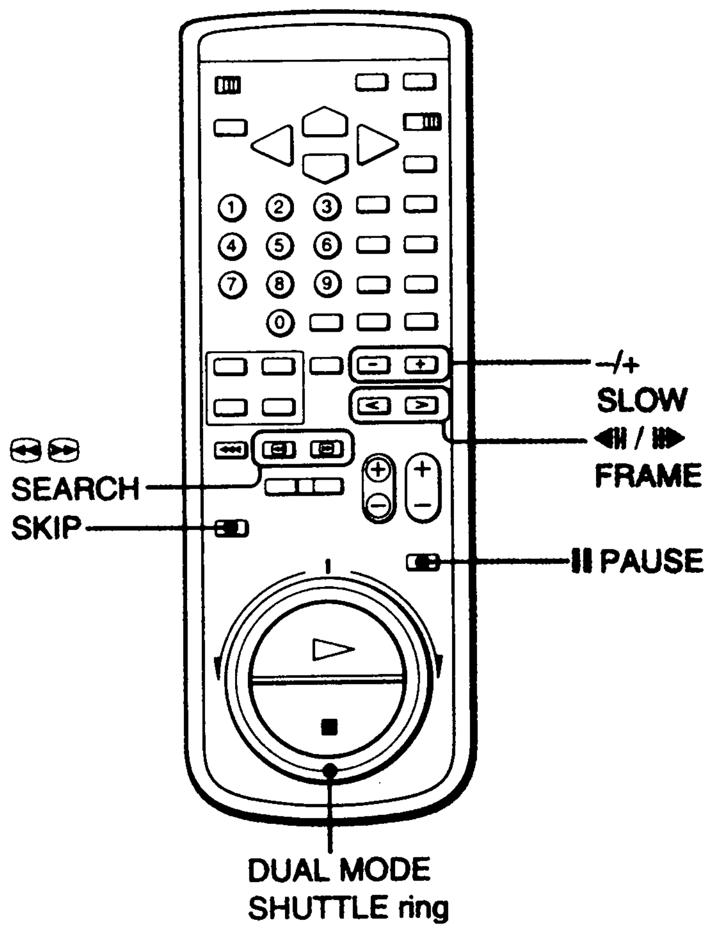
The timer doesn't work properly in the following cases:
- When you select DAILY for a Saturday and Sunday program
- When you select WEEKLY or DAILY for a program more than seven days ahead. (The WEEKLY and DAILY settings only work for the current week.)
- When you enter a program's PlusCode that has already ended

Variable Speed Playback

The following section explains the advanced playback functions you can do with your VCR.

Variable Speed Playback

Using the DUAL MODE SHUTTLE ring on your VCR or Remote Commander, you can play cassettes at a variety of forward and reverse speeds. You can also freeze a picture using the pause function.



Still Picture

When playing back a cassette, press II PAUSE to hold the picture in one place. To resume normal playback, press either ▷ PLAY or **II** PAUSE. If you leave your VCR in the pause mode, normal playback resumes after approximately 5 minutes.

Picture Search

By turning the DUAL MODE SHUTTLE ring either clockwise for forward viewing or counterclockwise for viewing in reverse, you can control the cassette playback speed.

- **Picture Search During Playback or Pause Modes**

While playing or pausing a cassette, turn the DUAL MODE SHUTTLE ring until the double arrows ◀◀ or ▶▶ appear in the display window.
A high-speed picture without sound displays on the screen until you release the ring.

When you release the DUAL MODE SHUTTLE ring, it returns to its original position.
If you release the ring while in the pause mode, the picture returns to pause. If you release it during playback, the picture returns to playback.

NOTE:
If you quick search a cassette recorded in the LP cassette speed, your picture may change to black and white, depending on the TV you're using.

- **Picture Search While Fast-Forwarding or Rewinding a Cassette**

When fast-forwarding or rewinding a cassette, turn the DUAL MODE SHUTTLE ring to preview a high-speed picture (clockwise for forward viewing or counterclockwise for reverse viewing).

When you release the ring, it returns to its original position and the VCR continues fast-forwarding or rewinding.

Variable Speed Playback

Locked Picture Search

This feature lets you lock in and view a high-speed picture while playing or pausing a cassette. In the play or pause mode, press ⏪ SEARCH (reverse) or ⏩ SEARCH (forward) on the Remote Commander.
To resume normal playback, press ▷ PLAY.

Skip Playback

While playing a cassette, press SKIP on the Remote Commander.
This feature lets you view your cassette at high speed for about 30 seconds before resuming normal playback.

Slow Motion Playback

During playback or playback pause mode, press I▶ SLOW + or – on the Remote Commander. Change the slow motion speed with the + or – buttons.
Press + to increase the playback speed, and – to decrease the playback speed.

Frame-by-Frame Picture

During the playback pause mode, press FRAME II▶ > to advance the picture one frame or ◀II < FRAME to reverse the picture one frame.
Each time you press the button, the picture moves one frame. To resume normal playback, press ▷ PLAY.

Picture Adjustment During Variable Speed Playback

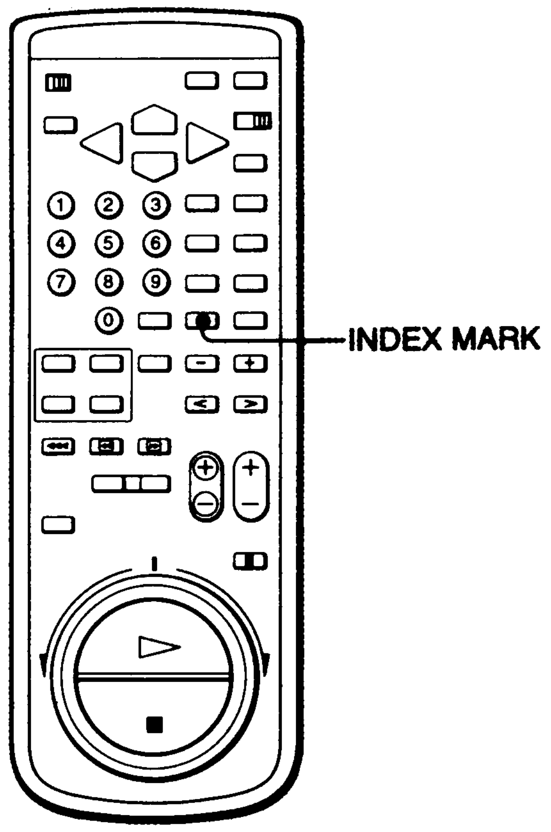
If a picture played in slow motion displays streaks or has poor sound quality, adjust the picture with the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ buttons inside the front panel. You can adjust the picture more easily by changing the speed closer to normal playback by pressing I▶ SLOW +.
If the picture appears to shake in the still mode, adjust it using the STILL ADJUST ▼/▲ buttons inside the front panel until the picture stabilizes.
When pausing a cassette, you may notice a band at the top or bottom of the screen. Adjust the picture by playing back the cassette in slow motion and using the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ buttons located inside the VCR's front panel.

NOTE:
Some snow or streaks are unavoidable when playing back a cassette in the reverse or reverse slow modes.

Index Function

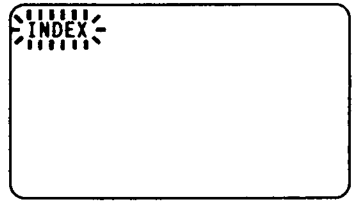
You can find specific locations on a cassette using your VCR's index function.

Marking Index Signals

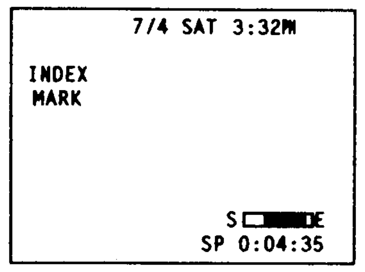


Whenever you mark an index, an index signal flashes in the VCR's display window and the INDEX MARK indicator appears on your TV screen.

Display window



TV screen



Automatic Index Mark
An index signal automatically marks the beginning of a program when you start recording it.

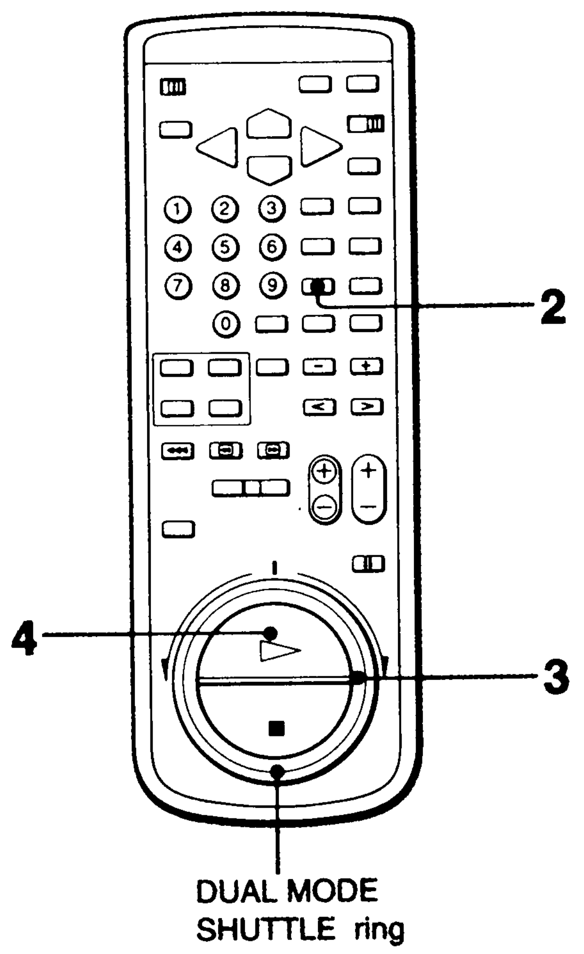
Manual Index Mark
When recording or playing a cassette, you can manually mark an index signal by pressing INDEX MARK on the Remote Commander.

NOTES:
- When marking index signals, leave an interval of at least 2 minutes between them so that the VCR can detect the signals correctly.
- When you mark an index signal during playback, the recorded sound, though not erased, is inaudible.
- You cannot mark an index signal in the following cases:

— On a cassette without a safety tab.
— On an unrecorded portion of a cassette.
— Immediately before a point on the cassette where the cassette speed (EP or SP) changes.
— When playing a cassette recorded in LP mode.

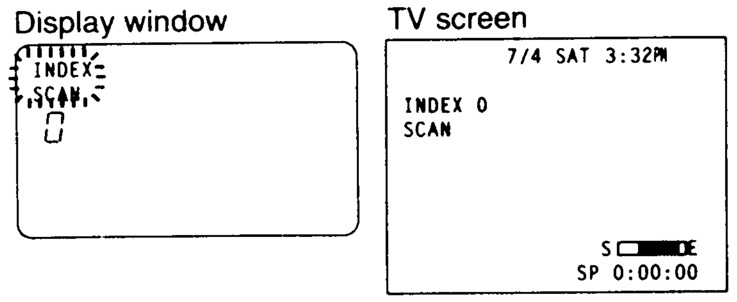
Playing Back from the Index Point — Index Scan

Here's how to find and play a program you've marked with an index signal:

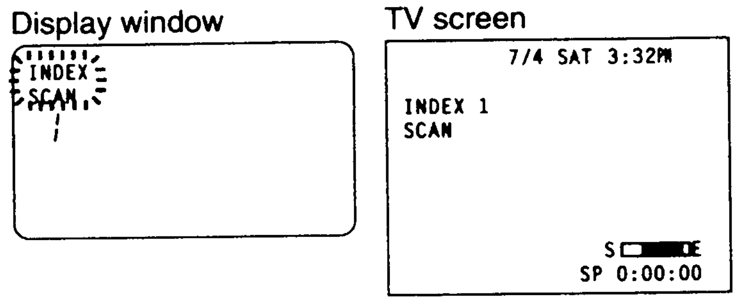

2
3
4
DUAL MODE
SHUTTLE ring

1 Insert an indexed cassette into your VCR.

2 Press INDEX once.
The INDEX and SCAN indicators flash alternately in the display window.


Display window
INDEX
SCAN
0
TV screen
7/4 SAT 3:32PM
INDEX 0
SCAN
S E
SP 0:00:00

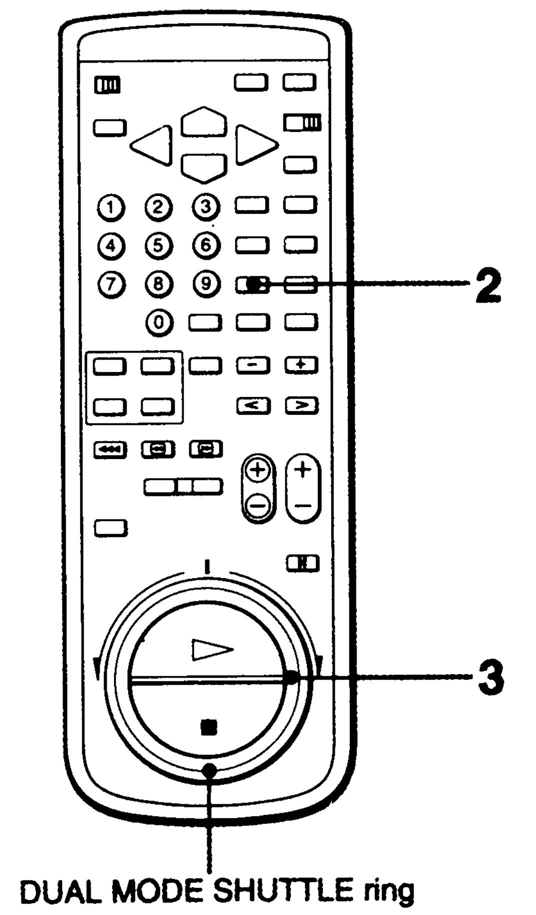
3 Turn the DUAL MODE SHUTTLE ring clockwise to find the previous program, or counter clockwise to find the next program.
The INDEX SCAN indicator flashes continuously while scanning.
The index scan locates the next marked index signal and plays about 10 seconds of tape prior to the signal. The VCR then rewinds or advances to the next index signal. Every time the VCR finds an index signal, playback begins and the displayed index number increases.


Display window
INDEX
SCAN
1
TV screen
7/4 SAT 3:32PM
INDEX 1
SCAN
S E
SP 0:00:00

4 When you find the program you want, press ▷ PLAY.
Playback starts from that point.

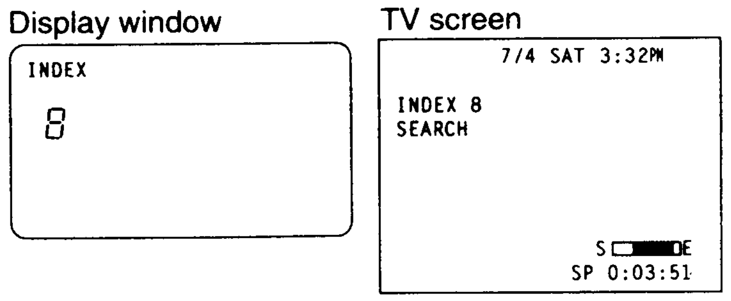
Locating an Index — Index Search

Locate an index by indicating how many index signals ahead or behind that program is from the cassette's current position. Here's how:

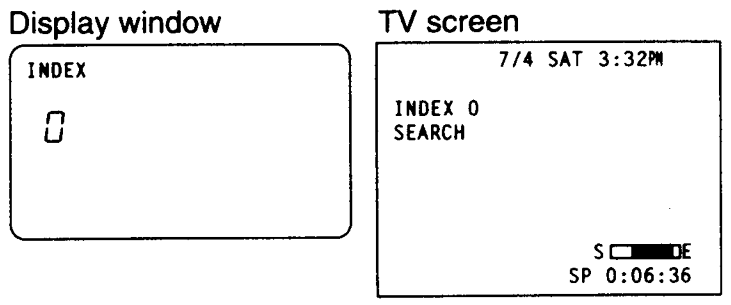

2
3
DUAL MODE SHUTTLE ring

1 Insert an indexed cassette into your VCR.

2 Press INDEX until the index number for the desired program appears in the display window or on your TV screen.
The VCR exits from the index mode, if you pass index number 19.

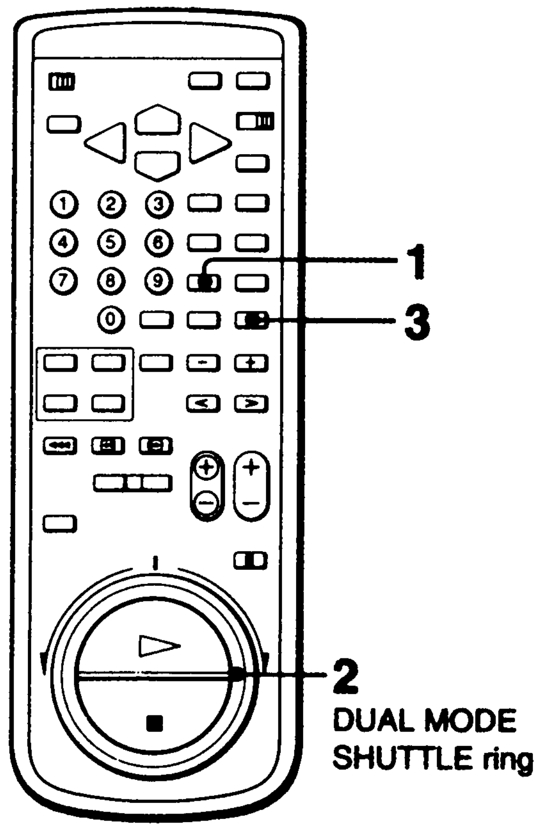

Display window
INDEX
8
TV screen
7/4 SAT 3:32PM
INDEX 8
SEARCH
S E
SP 0:03:51

3 Turn the DUAL MODE SHUTTLE ring clockwise to locate an upcoming index signal or counterclockwise for a prior index signal.
The cassette rewinds or advances to the next index. Each time an index signal is detected, the index number decreases. When the number reaches 0, your VCR will begin to play.


Display window
INDEX
0
TV screen
7/4 SAT 3:32PM
INDEX 0
SEARCH
S E
SP 0:06:36

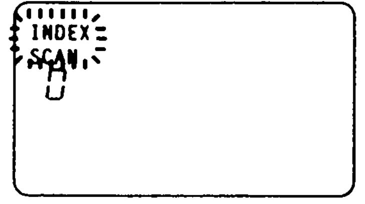
Erasing Index Signals

To remove any unwanted index signals, follow these steps:

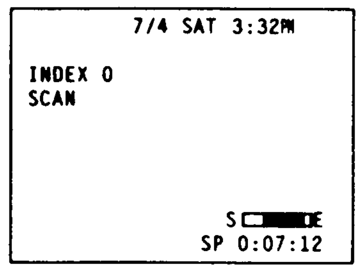


1 **Press INDEX once.**
The INDEX and SCAN indicators flash alternately in the display window.

Display window

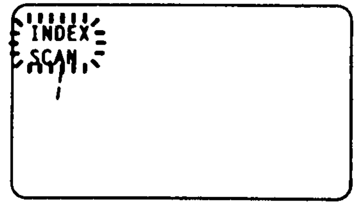


TV screen

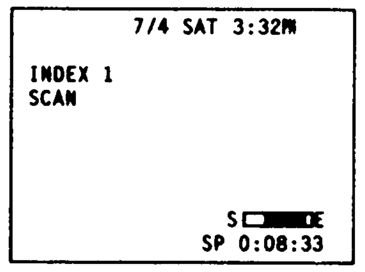


2 **Turn the DUAL MODE SHUTTLE ring until the index you want to erase appears on your TV screen.**
Each time an index is detected, the VCR plays back the indexed program for approximately 10 seconds. It then rewinds or advances to the next index signal. This 10 second preview lets you decide whether you've located the program you wish to erase.

Display window

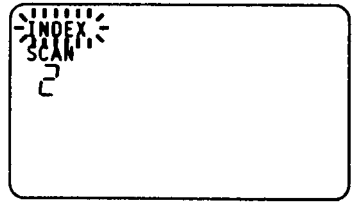


TV screen

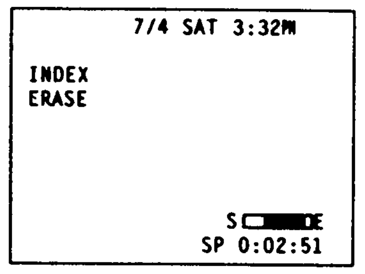


3 **Press INDEX ERASE during 10 second preview.**
The INDEX indicator flashes.

Display window



TV screen



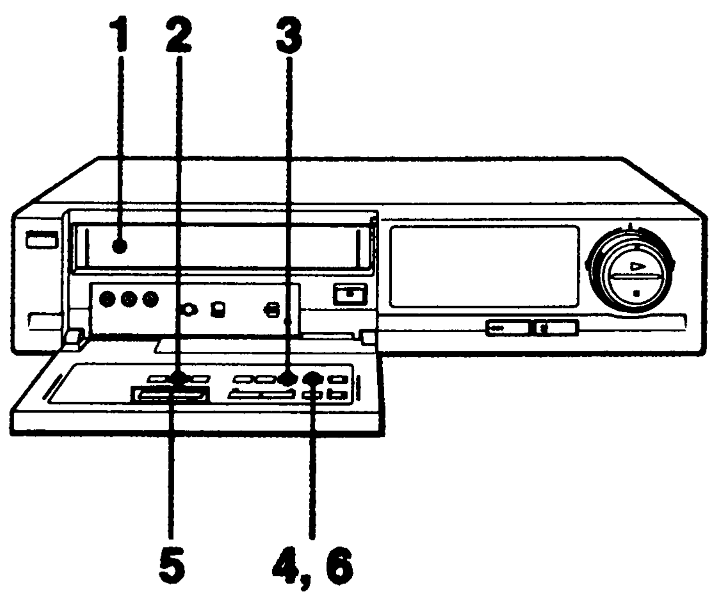
NOTES:
- While the index signal is being erased, the sound is inaudible.
- Index signals marked just before or after a change to the SP or EP recording mode cannot be erased.
- Index signals marked on a cassette recorded in LP mode cannot be erased.
- Index signals marked on the beginning of the tape may not be erased.

Quick-Timer Recording

This function is convenient for recording programs without going through the entire timer setting procedure. Note, however, that it provides only an approximate setting for the program you wish to record.

NOTE:
Before you begin, make sure the clock has been set, then ensure that the timer recording function is turned off by checking the TIMER REC (recording) indicator. If the indicator is lit, press TIMER REC ON/OFF to turn it off.

Quick-Timer Recording



If you're currently recording, skip to step 7.

1 **Insert a cassette into your VCR.**

2 **Press INPUT SELECT to light the TUNER in the display window.**

3 **Select the desired recording speed (SP or EP) by pressing TAPE SPEED inside the front panel.**

4 **Press QUICK TIMER on the VCR.**
If you insert a cassette without its safety tab, your VCR will eject the cassette.

5 **Select the channel you wish to record using the CHANNEL +/– or channel number buttons. Press ENTER while the channel display flashes.**

6 **Press QUICK TIMER again to start recording.**

7 **Select the recording duration by pressing QUICK TIMER to change the duration indicator in the display window. Each time you press QUICK TIMER, the recording duration increases by 30 minutes.**
Once recording has finished, your VCR will turn off automatically.

0:00 → 0:30 → 1:00 · · · · · 8:00

To stop quick-timer recording:
To stop quick-timer recording while a program is being recorded, press TIMER REC ON/OFF.

NOTES:
- If your cassette ends during quick-timer recording, recording stops and the VCR turns off. The cassette will not rewind automatically.
- If a power interruption occurs during quick-timer recording, recording will stop and your VCR will turn off. If the interruption lasts less than three hours and the power is restored before the recording end time, recording will start again from that point.

Buttons Operable During Quick-Timer Recording

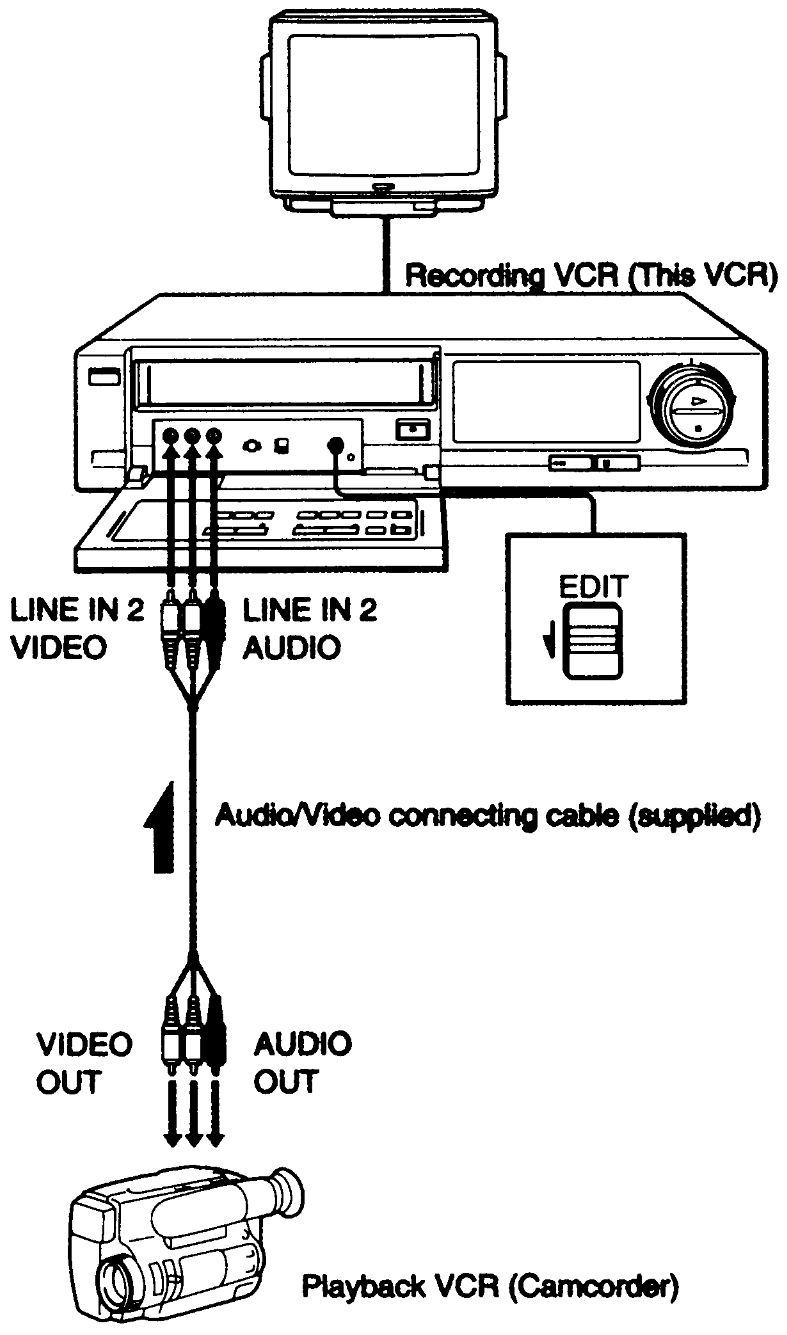
TIMER REC (ON/OFF)	To stop quick-timer recording
QUICK-TIMER	To change recording duration
COUNTER RESET	To reset the counter to zero
INDEX MARK	To record an index signal
TV/VTR	To watch the picture broadcast on another channel (TV)
MENU	Only operable to check the timer recording settings. (See "Checking the Timer Settings," on page 40.)

Editing

Using an additional VCR, you can record programs from one VCR to the other. Here's how:

Editing from Another VCR

Here's how to edit from another VCR (such as an 8mm video camera recorder for playback) when using this VCR for recording.



Before you start:
- Select LINE 1 or LINE 2 with INPUT SELECT, whichever the playback VCR is connected to.
- Select SP or EP with TAPE SPEED.
- Select EDIT position to light the EDIT indicator in the display window.

NOTE:
If your playback VCR has an editing function, select it to reduce static and improve reception.

How to edit:

1 **Insert a blank cassette into the recording VCR.**

2 **Turn on the playback VCR and insert a source cassette.**

3 **Locate the playback start point and select the playback pause mode on the playback VCR.**

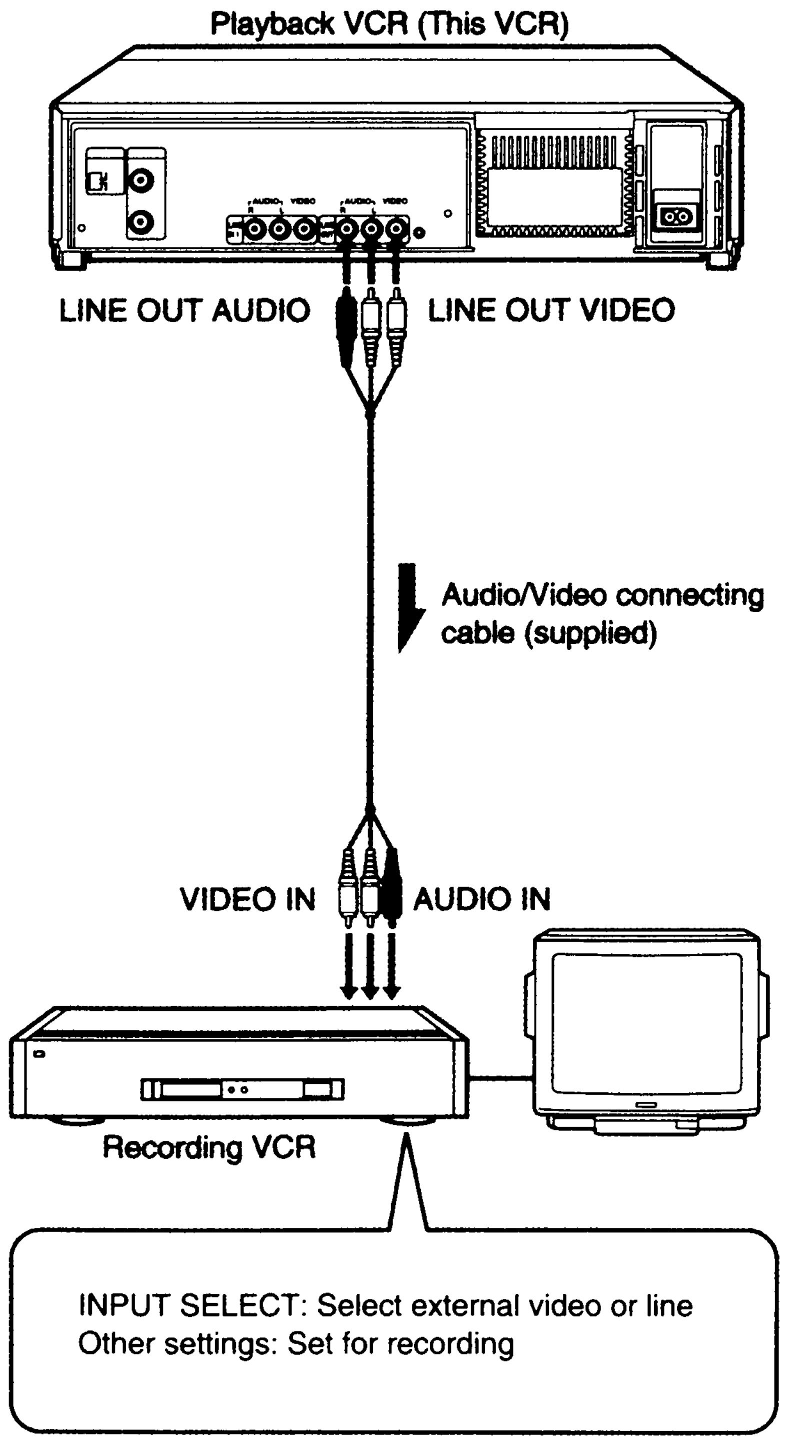
4 **Locate the recording start point and select the recording pause mode on the recording VCR.**

5 **Press II PAUSE on both VCRs.**
For best results, press II PAUSE on the playback VCR just before pressing II PAUSE on the recording VCR. When you've finished editing, press ■ STOP on both VCRs.

NOTES:
- If your playback VCR is a stereo unit, make connections with the supplied audio/video connecting cable.
- If your playback VCR is a monaural unit, connect the white plug to LINE IN 2 AUDIO L on this VCR. This lets you record the sound of the playback VCR on both channels of this VCR. Do not connect the white plug to LINE IN 2 AUDIO R.
- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously. Doing so may cause a humming noise.

Editing onto Another VCR

Here's how to use this VCR as the playback VCR and another VCR as the recording VCR.



INPUT SELECT: Select external video or line
Other settings: Set for recording

Before you start:

- **Select EDIT position to light the EDIT indicator in the display window.**
  If your recording VCR has an editing function, it should also be selected to improve reception.
- **Press DATA SCREEN to delete the on-screen display.**

How to edit:

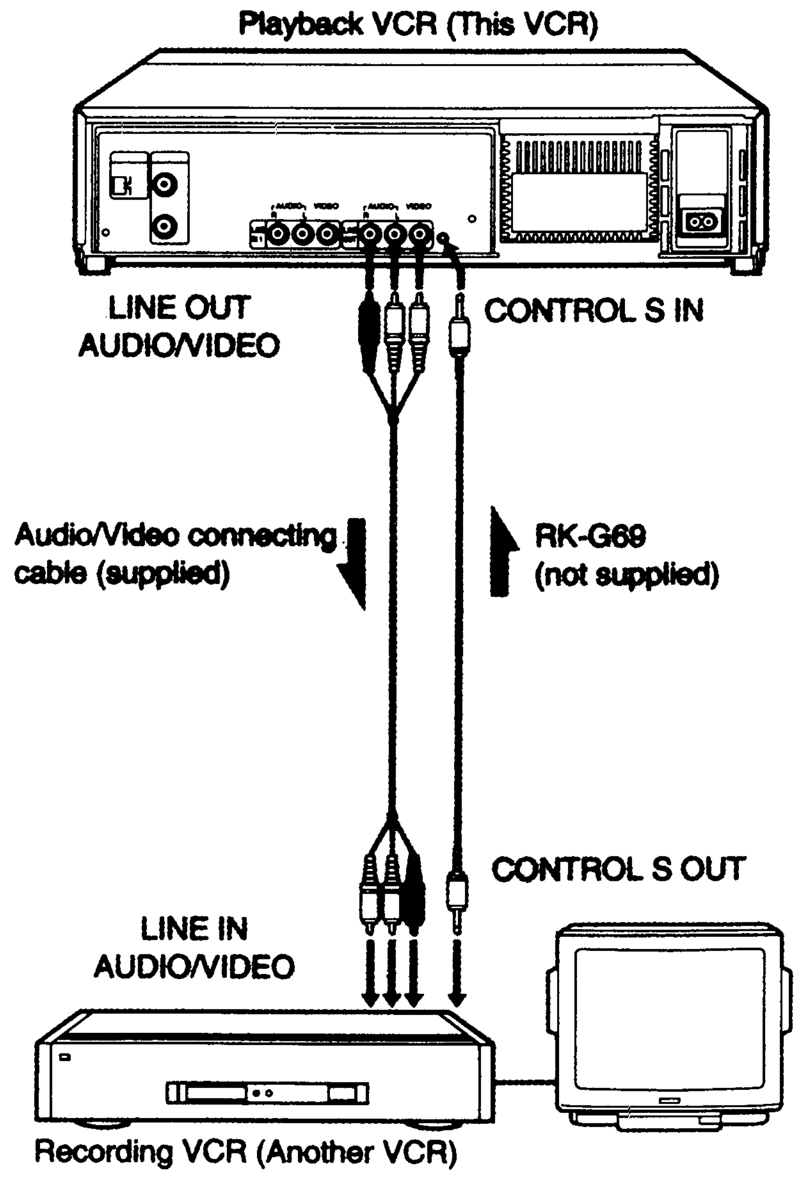
1. **Turn on the recording VCR and insert a blank cassette.**
2. **Insert a source cassette into the playback VCR.**
3. **Locate the playback start point and select the play back pause mode on the playback VCR.**
4. **Locate the recording start point and select the recording pause mode on the recording VCR.**
5. **Press II PAUSE on both VCRs.**
   For best results, press II PAUSE on the playback VCR just before pressing II PAUSE on the recording VCR.
   When you've finished editing, press ■ STOP on both VCRs.

NOTES:
- If your recording VCR is a stereo unit, make connections with the supplied audio/video connecting cable.
- If your recording VCR is a monaural unit, make connections using the VMC-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously. Doing so may cause a humming noise.

Synchronized Editing onto Another VCR

Synchronized editing is the process of recording and editing a program from either a video camera recorder or a VCR to another VCR. Because this editing function involves one VCR controlling another VCR or video camera recorder, it is said to be "synchronized".

The following illustration shows you how to use this VCR for playback and either a Sony VHS VCR or certain 8mm VCRs having a Control S OUT terminal and synchro edit function for recording.



Before you start:

- Select external video or LINE on recording VCR.
- Make necessary settings for recording.

How to edit:

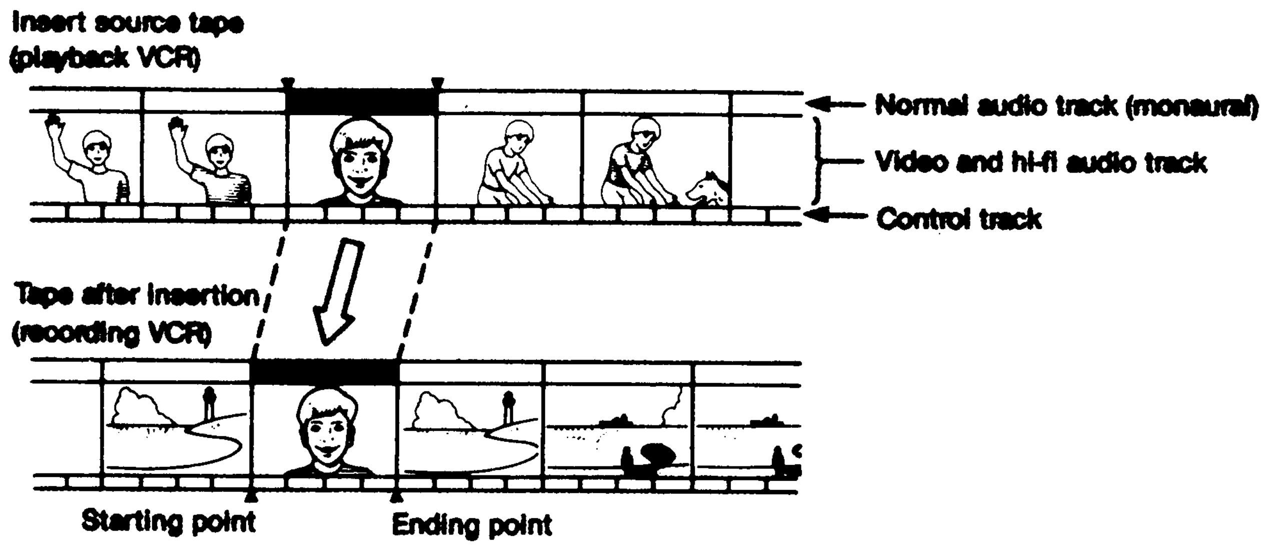
1. **Turn on the recording VCR and insert a blank cassette.**
2. **Insert a source cassette into the playback VCR.**
3. **Select EDIT position to light the EDIT indicator in the display window.**
   If your recording VCR has an editing function, it should also be selected.
4. **Locate the edit start point and select the recording pause mode on the recording VCR.**
5. **Locate the playback start point and select the playback pause mode on the playback VCR.**
6. **Press SYNCHRO EDIT on the recording VCR.**
   Both recording and playback will start.
7. **At the desired edit end point, press SYNCHRO EDIT on the recording VCR.**
   The recording VCR enters the recording pause mode and the playback VCR enters the playback pause mode.
8. **To edit the next scene, repeat steps 5, 6, and 7.**
   When you've finished editing, press ■ STOP on both VCRs.

NOTES:
- If your recording VCR is a monaural unit, make connections using the VMC-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously. Doing so may cause a humming noise.

Insert Editing (for SLV-696HF only)

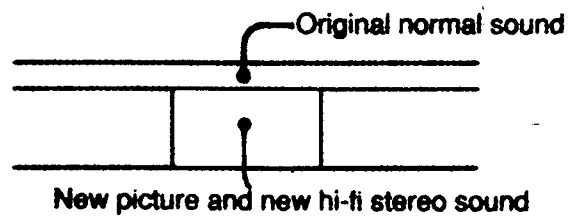
When you want to replace one prerecorded scene (and its sound) with another, you can use your SLV-696HF's insert editing function. This function lets you make either video inserts, audio inserts, or both video and audio inserts.

How the Insert Editing Function Works


Insert source tape (playback VCR)
Normal audio track (monaural)
Video and hi-fi audio track
Control track
Tape after insertion (recording VCR)
Starting point
Ending point

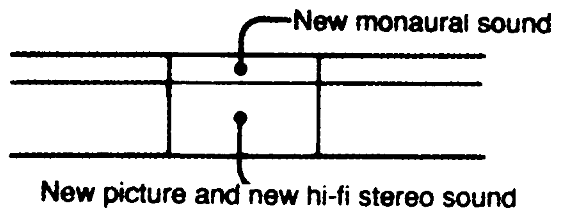
Video Insert

You can insert a new picture and hi-fi stereo sound from a video and hi-fi audio track onto a prerecorded cassette. Note that the original audio track is retained.


Original normal sound
New picture and new hi-fi stereo sound

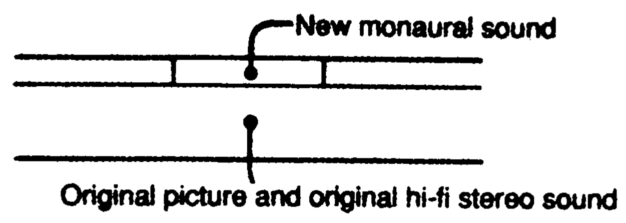
Video and Audio Insert

You can insert a new picture, hi-fi stereo sound, and a new monaural sound onto a prerecorded cassette.


New monaural sound
New picture and new hi-fi stereo sound

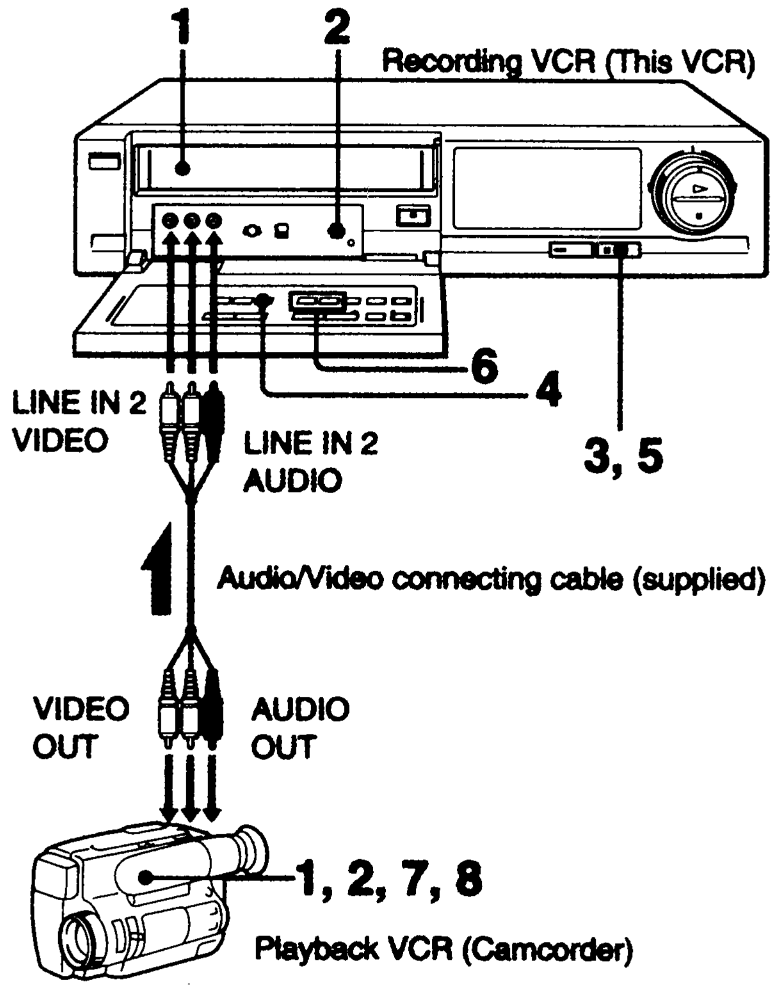
Audio Insert

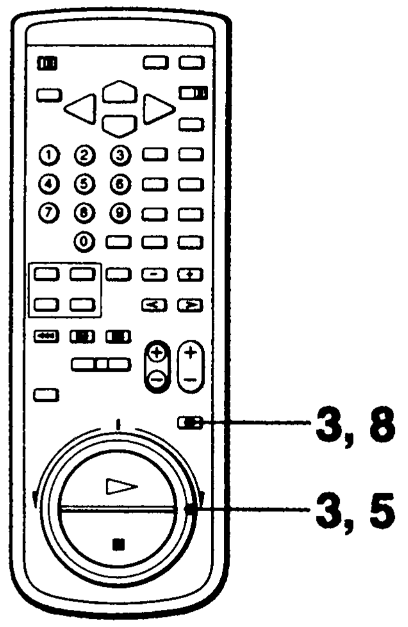
You can insert a monaural soundtrack onto a prerecorded cassette. The picture and hi-fi stereo sound of the video and hi-fi audio track are retained.


New monaural sound
Original picture and original hi-fi stereo sound

Insert Editing from another VCR

Example: From an 8mm video camera recorder to this VCR.


1
2
Recording VCR (This VCR)
6
4
3, 5
LINE IN 2 VIDEO
LINE IN 2 AUDIO
Audio/Video connecting cable (supplied)
VIDEO OUT
AUDIO OUT
1, 2, 7, 8
Playback VCR (Camcorder)



Before you start:

- For connection, see pages 55 through 56. (The CONTROL S connections are not needed.)
- Select the insert source from the equipment connected to LINE IN 1 or 2.
- Connect the VCR to an audio system for "audio insert."

How to edit:

1. **Insert a source cassette into the playback VCR and a cassette for recording into this VCR.**
2. **Select EDIT position to light the EDIT indicator in the display window.**
   If your playback VCR has an editing function, it should also be selected.
3. **On the recording VCR locate the edit end point, then press II PAUSE on this VCR.**
4. **Press COUNTER RESET on the recording VCR.**
5. **On the recording VCR, rewind the cassette to locate the starting point and set the VCR to the playback pause mode.**
   The DUAL MODE SHUTTLE ring is useful for locating a desired starting point.
6. **Press VIDEO/AUDIO INSERT.**
   For audio insert, press AUDIO. The "A INSERT" lights in the display window.
   For video insert, press VIDEO. The "V INSERT" lights in the display window.
   For audio and video insert, press the AUDIO and then VIDEO. The "AV INSERT" lights in the display window.
7. **On the playback VCR, locate the starting point where you want to start the insertion and set the VCR to the playback pause mode.**
8. **Press II PAUSE on both VCRs to start the insertion.**
   At the ending point (0H00M00S), the insertion stops automatically. (To stop playback, press ■ STOP.)

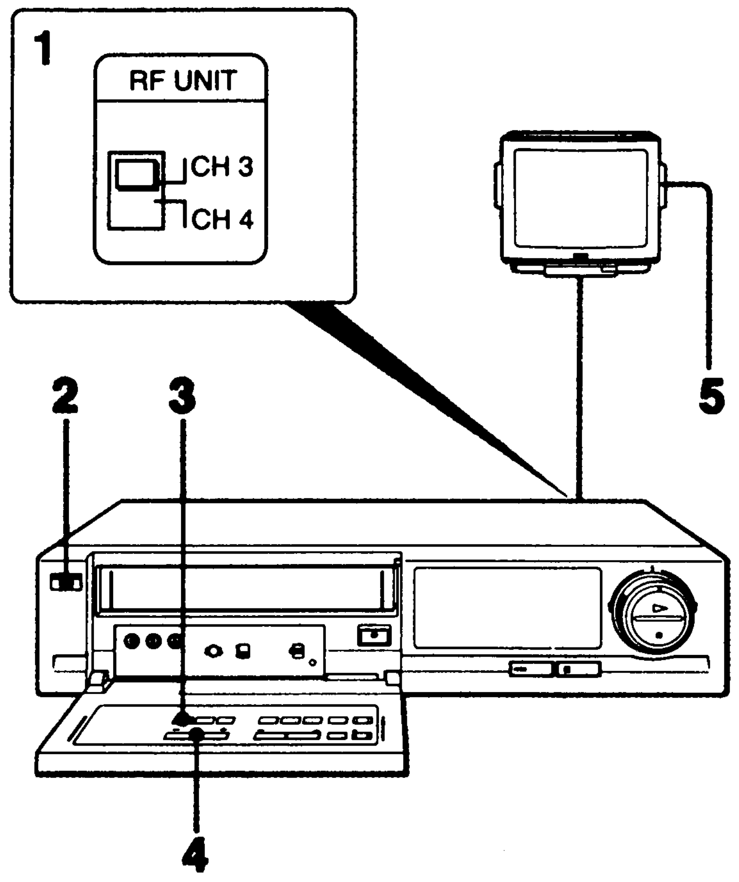
To stop the insertion temporarily:
Press II PAUSE.

To stop ongoing insertion:
Press ■ STOP.

NOTES:
- The video/audio inserts cannot be made onto an unrecorded portion of a cassette.
- After the insertion, the previous picture and/or sound will be erased.

General Setup Information

Setting the RF Unit



Why this setting is necessary:

You must set the RF UNIT selector at the rear of the VCR properly so that your TV can receive the correct signal from the VCR. Set the selector to CH 3 (Ch 3) or CH 4 (Ch 4), whichever is not active in your area.

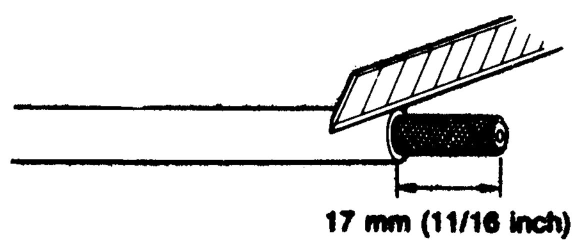
If you connect a TV or color monitor equipped with A/V input jacks, skip this adjustment.

1. **Set the RF UNIT at the rear of the VCR to CH 3 or CH 4, whichever is not active in your area.**
2. **Press POWER.**
   The power indicator lights up in the display window.
3. **Press TV/VTR.**
   The VTR indicator lights up in the display window.
4. **Check that the TUNER indicator appears in the display window, then select an active channel in your area by pressing CHANNEL +/–.**
5. **Turn on your TV and set it to the channel you selected in step 1.**
   Your TV is now tuned to the VCR. Whenever you use the VCR, set the TV to the preselected channel.

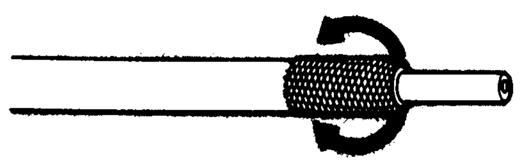
NOTE:
For details on adjusting TV channels, see your TV instruction manual.

Attaching the F-type Connector (not supplied)

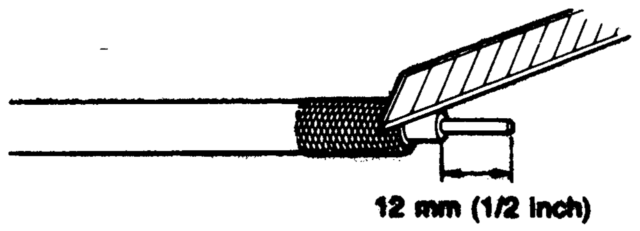
1. **Strip 17 mm (11/16") of the black polyvinyl jacket.**



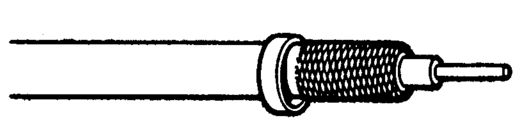
2. **Fold back the woven wire.**



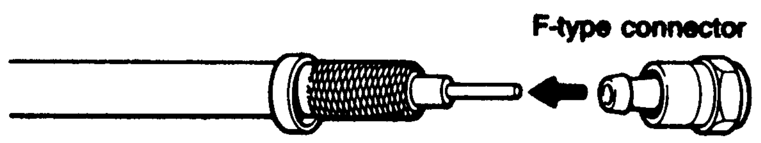
3. **Strip 12 mm (1/2") of the white plastic casing, leaving 12 mm of the center conductor.**



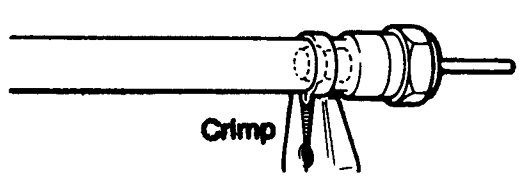
4. **Slip the crimping ring over the cable.**



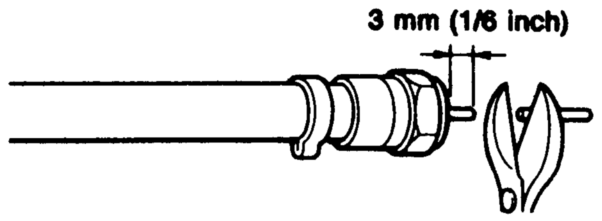
5. **Insert the inner conductor into the F-type connector shaft and push the end of the cable into the connector as far as it will go.**



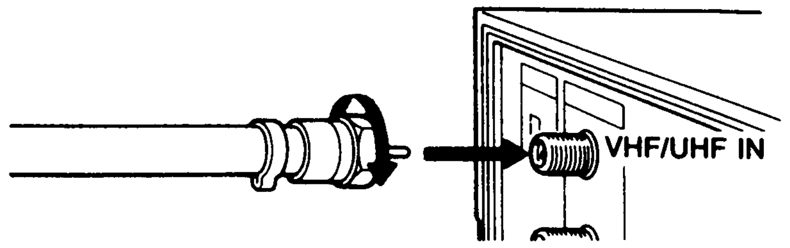
6. **Slide the crimping ring over this assembly. Pinch the crimping ring with pliers to hold the connection in place.**



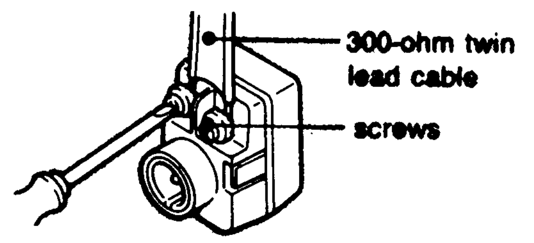
7. **Cut the center conductor leaving 3 mm (1/8") from the end.**



8. **Insert the F-type connector into VHF/UHF IN plug on the VCR.**



Attaching the External Antenna Connector (supplied)

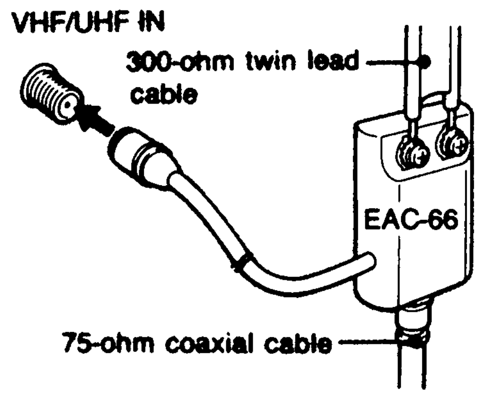


1 Loosen the screws on the antenna connector.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws on the antenna connector.

3 Retighten the screws.

Attaching the EAC66 U/V Band Separator / Mixer (not supplied)



1 Loosen the screws on the U/V band separator/mixer.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws.

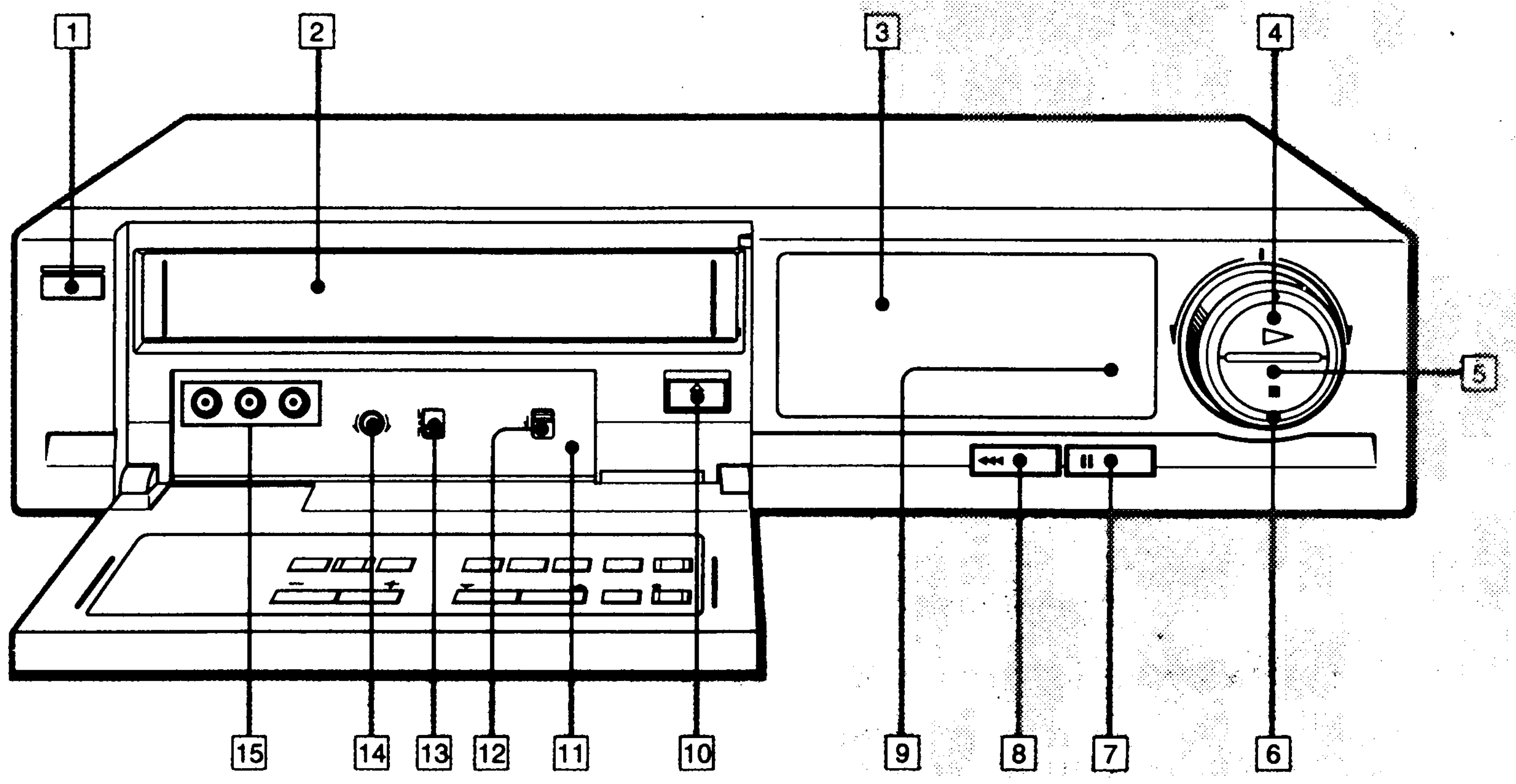
3 Connect the 75-ohm coaxial cable to the U/V band separator/mixer.

4 Connect the U/V band separator/mixer to the VHF/UHF IN plug on the VCR.

Identifying the Parts and Controls

Refer to the pages indicated for details.

Front Panel



1 POWER ON/OFF switch and indicator (page 60)

2 Cassette compartment

3 Display window and function mode display (page 66)

4 ▷ PLAY button (page 29)

5 ■ STOP button (page 29)

6 DUAL MODE SHUTTLE ring

7 II PAUSE button (page 47)

8 ◀◀◀ HI-SPEED REWIND button (page 29)

9 Remote Sensor

10 ≜ EJECT button (page 28)

11 CL (clear) button (page 70)

12 EDIT selector (page 55)

13 COMMAND MODE VTR1/VTR2/VTR3 selector (page 17)

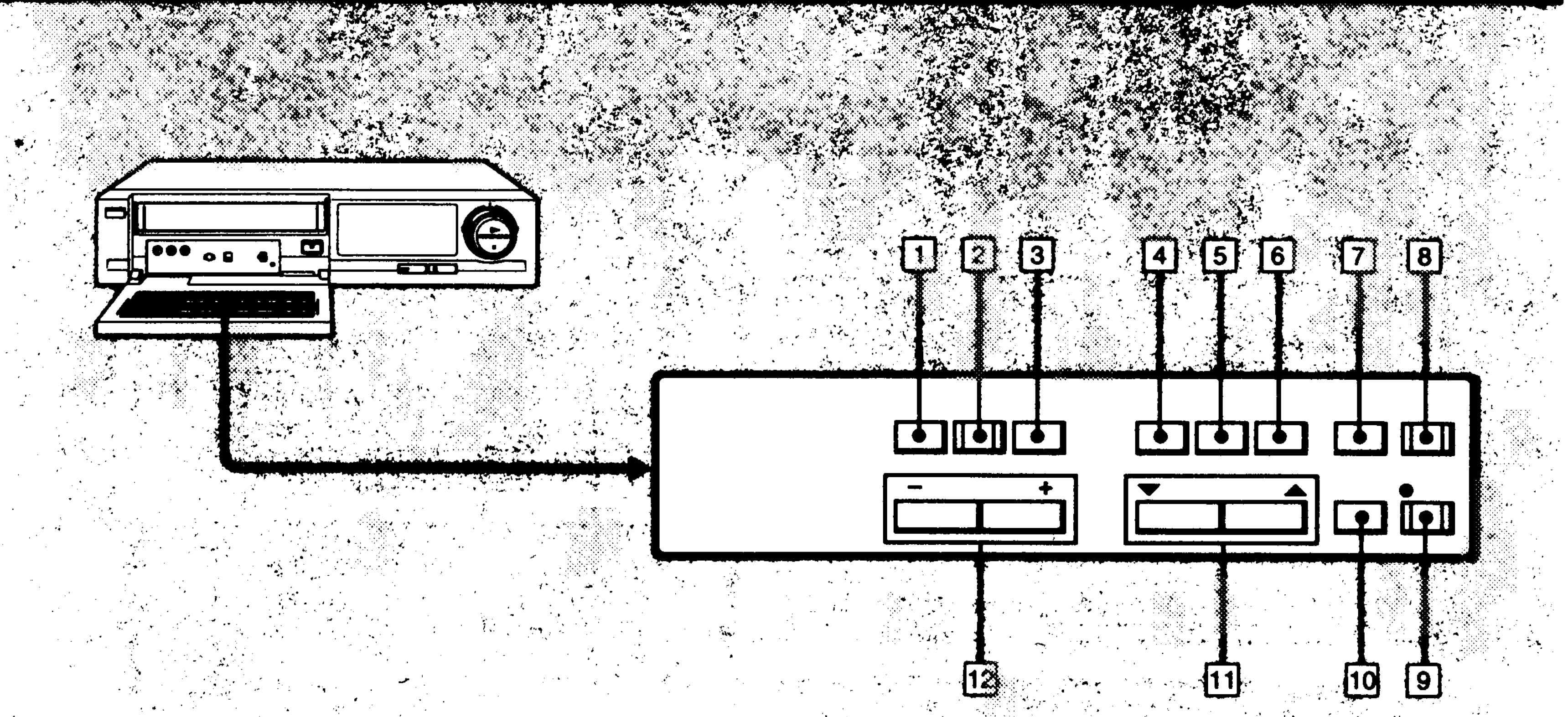
14 SHARPNESS SOFT/SHARP control (page 29)

15 LINE IN 2 VIDEO and AUDIO jacks (phono type) (page 55)

Identifying the Parts and Controls

Refer to the pages indicated for details.

Inside of Front Panel


1
2
3
4
5
6
7
8
−
+
12
11
10
9

1 TV/VTR button (page 60)

2 INPUT SELECT button (page 33)

3 COUNTER RESET button (page 30)

4 VIDEO INSERT button (SLV-696HF only) (pages 58, 59)

5 AUDIO INSERT button (SLV-696HF only) (pages 58, 59)

6 TAPE SPEED (SP/EP) button (page 33)

7 QUICK TIMER button (page 53)

8 TIMER REC ON/OFF button (page 38)

9 REC button (page 33)

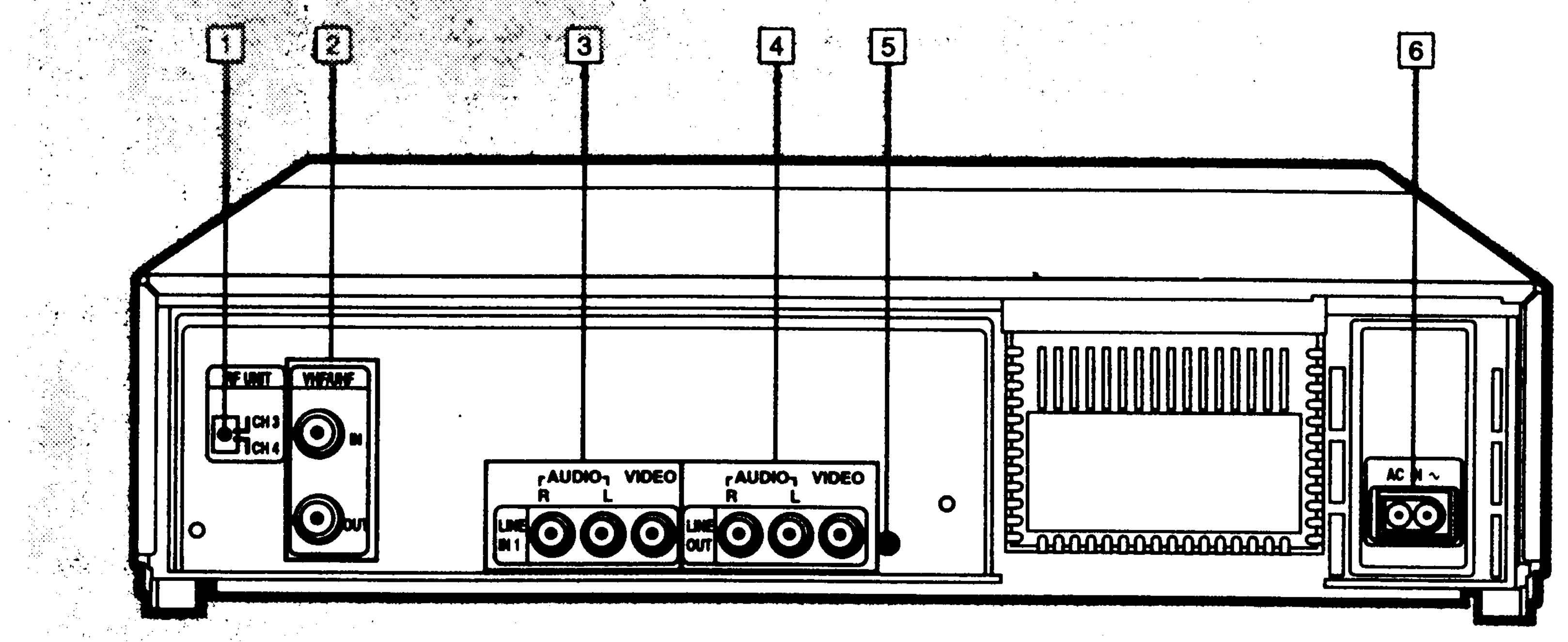
10 TRACKING AUTO/MANUAL button (page 31)

11 TRACKING NORMAL/SLOW and STILL ADJUST button (page 31)

12 CHANNEL +/– buttons (page 33)

Refer to the pages indicated for details.

Rear Panel


1
2
3
4
5
6
RF UNIT
CH 3
CH 4
VHF/UHF
IN
OUT
LINE IN 1
AUDIO
R
L
VIDEO
LINE OUT
AUDIO
R
L
VIDEO
AC IN ~

1 RF UNIT selector (page 60)

2 VHF/UHF IN/OUT connectors (F-type) (pages 8 to 14)

3 LINE IN 1 AUDIO and VIDEO jacks (phono type)

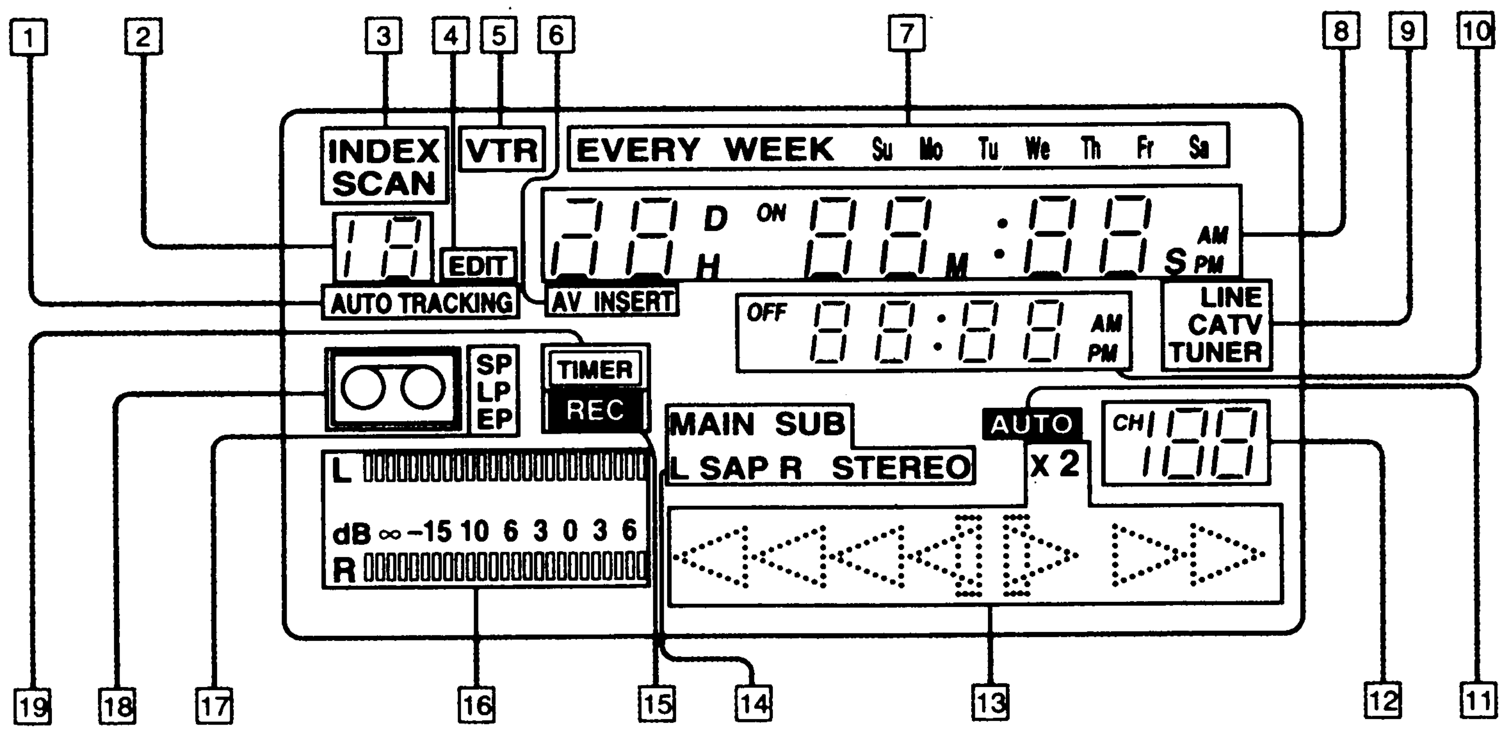
4 LINE OUT AUDIO and VIDEO jacks (phono type) (page 7)

5 CONTROL S IN jack (mini-type) (page 57)

6 AC IN socket (page 6)

Refer to the pages indicated for details.

Display Window Indicators


1
2
3
4
5
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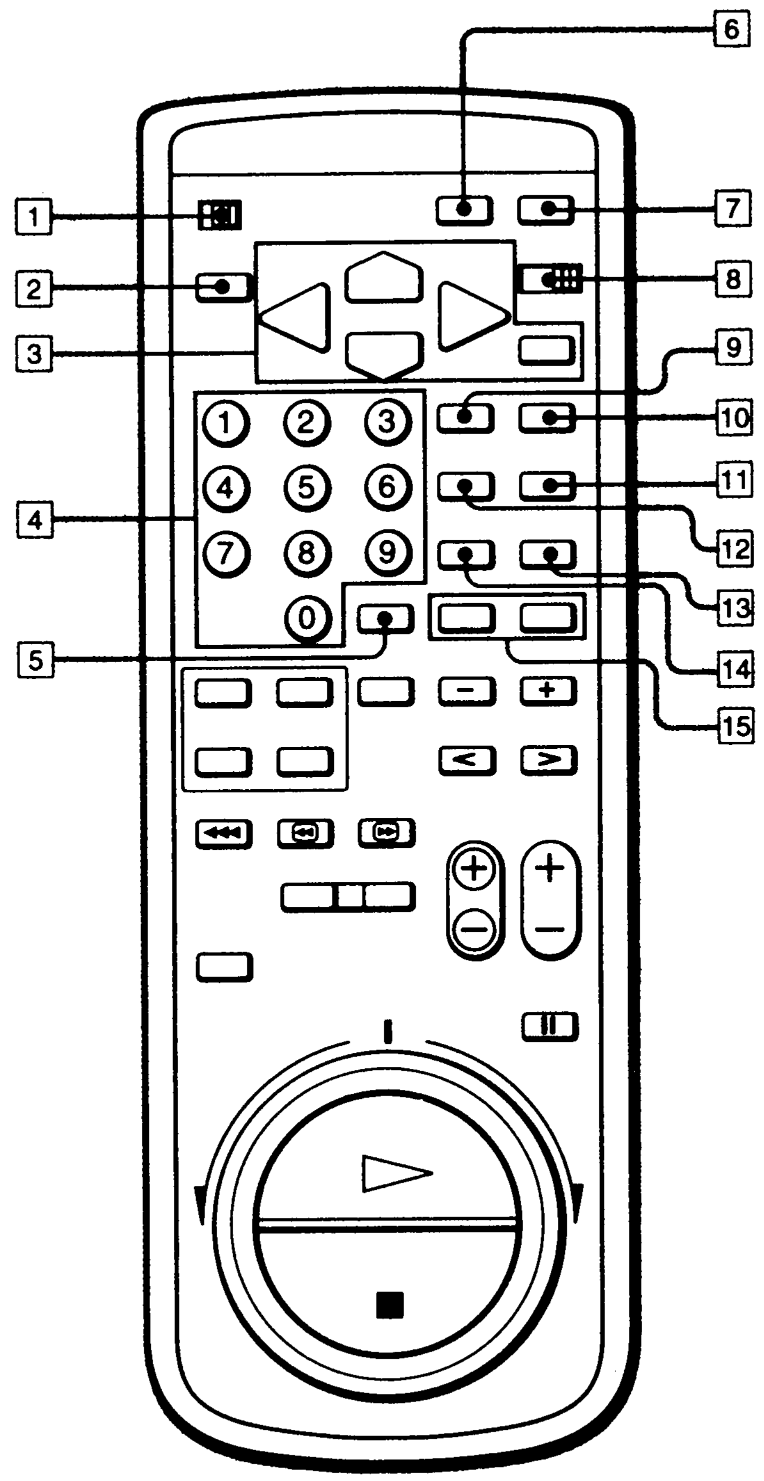
7
8
9
10
INDEX SCAN
VTR
EVERY WEEK Su Mo Tu We Th Fr Sa
D ON
H
M
S
AM PM
EDIT
AUTO TRACKING
AV INSERT
OFF
LINE CATV TUNER
SP LP EP
TIMER
REC
MAIN SUB
L SAP R STEREO
AUTO
X 2
CH
L
dB ∞ -15 10 6 3 0 3 6
R
19
18
17
16
15
14
13
12
11

1. AUTO TRACKING indicator (page 31)
2. Index number and timer program number for VCR Plus+ indicator (page 50)
3. INDEX, INDEX SCAN indicator (pages 49, 50)
4. EDIT indicator (page 55)
5. VTR indicator (page 33)
6. AV INSERT indicator (SLV-696HF only) (page 59)
   "A INSERT" lights for audio insert.
   "V INSERT" lights for video insert.
   "AV INSERT" lights for audio and video insert.
7. Day of the week indicator, EVERY WEEK indicator for timer-activated recording (page 38)
8. Linear time counter (page 30)
9. Input mode indicator
10. Quick-timer recording time/current time (page 53)
11. AUTO indicator (page 29)
12. Channel Number/Input Mode indicator
13. Tape Operation indicator (page 29)
14. Stereo Program/SAP indicator (page 35)
15. REC (recording) indicator
16. Peak Level Meter
17. Tape Speed indicator (LP is for playback only).
18. Cassette indicator (page 28)
19. TIMER indicator

Refer to the pages indicated for details.

Remote Commander

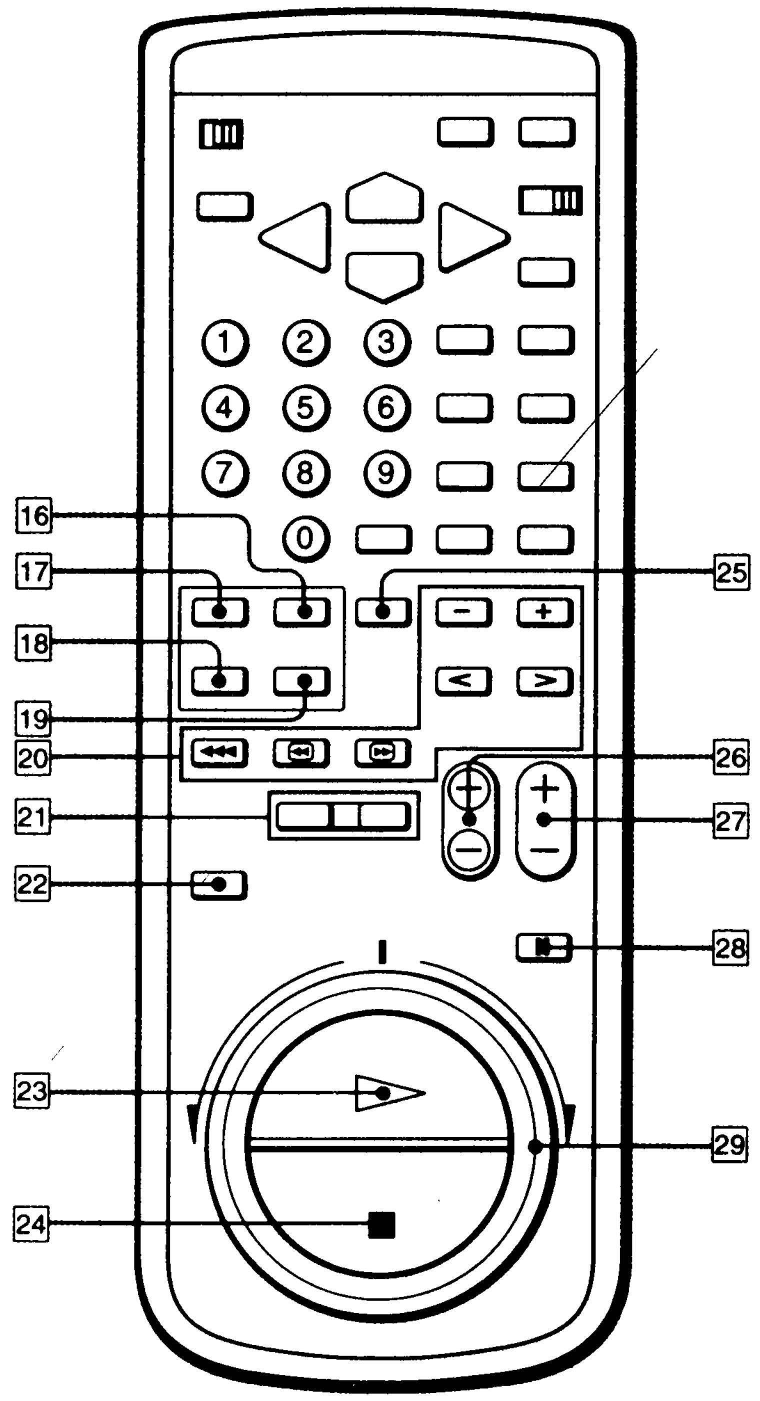

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
0

1. TV/VTR Remote Control selector (page 17)
2. MENU button
3. EXECUTE button and Cursor Shift ▲/▼/◀/▶ buttons
4. Channel Number buttons (page 33)
5. ENTER button
6. TV/VTR (Antenna TV/VTR) button (page 34)
7. POWER switch (page 60)
8. COMMAND MODE 1/2/3 selector (page 17)
9. TIMER CLEAR button (page 41)
10. TIMER REC ON/OFF button (page 38)
11. INPUT SELECT button (page 33)
12. TAPE SPEED button (page 33)
13. DATA SCREEN button (page 30)
14. INDEX button (page 50)
15. INDEX MARK/ERASE buttons (pages 49, 52)

Identifying the Parts and Controls

Refer to the pages indicated for details.

Remote Commander



16 **ONCE button (page 45)**

17 **VCR Plus+ button (page 45)**

18 **DAILY button (page 45)**

19 **WEEKLY button (page 45)**

20 **Tape Transport buttons (pages 29, 47 to 48)**
SLOW
(pressing + increases the speed; – decreases the speed)
FRAME
(frame-by-frame picture and cassette direction for slow motion playback;
> forward
< reverse
◀◀◀ HI-SPEED REWIND
⏪⏩ SEARCH (reverse/forward)

21 **REC buttons (Press the two buttons simultaneously) (page 33)**

22 **SKIP button (page 48)**

23 **▷ PLAY button (page 29)**

24 **■ STOP button (page 29)**

25 **AUDIO MONITOR button (page 32)**

26 **CHANNEL +/– buttons (page 33)**

27 **VOL +/– buttons**

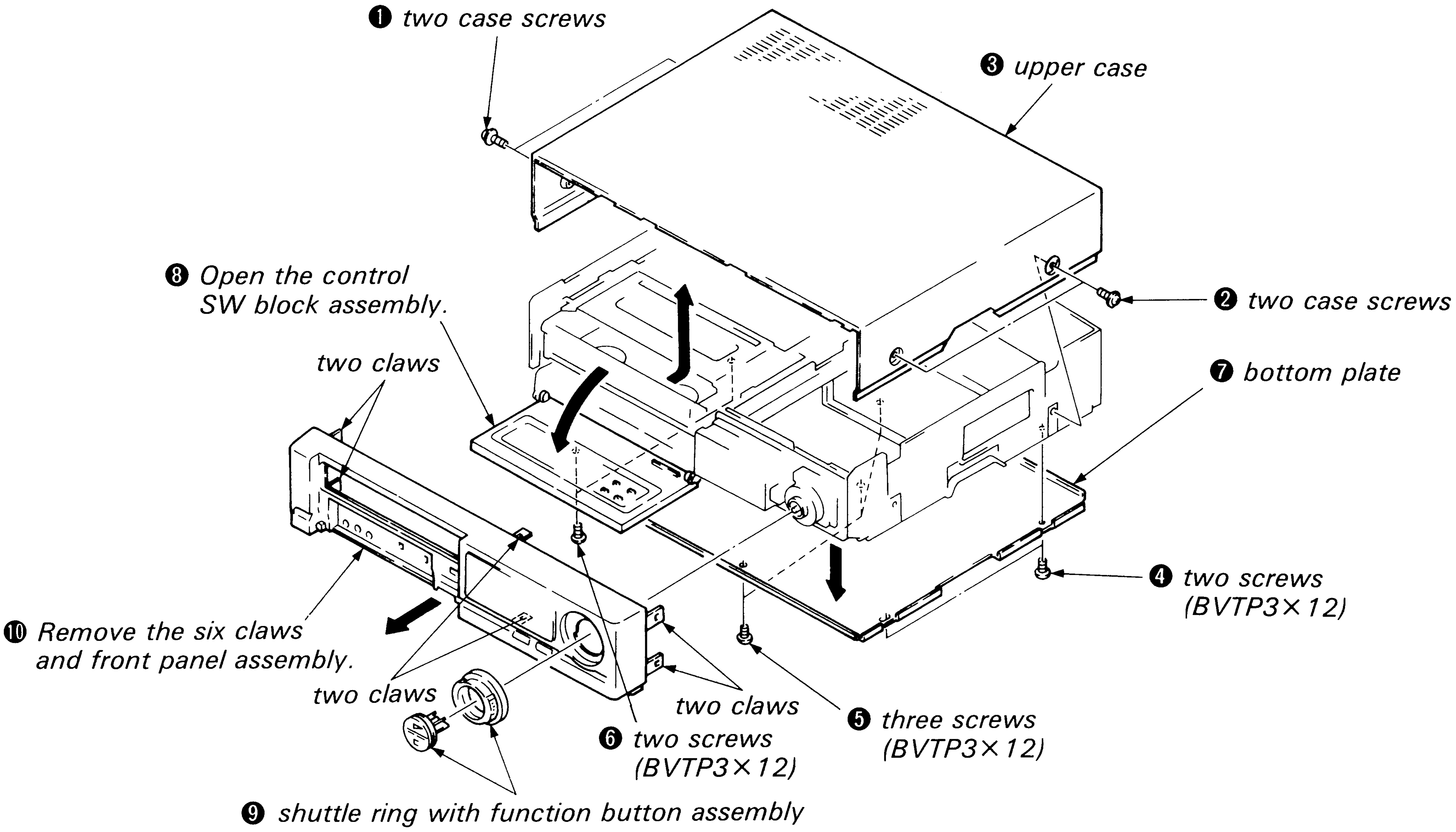
28 **II PAUSE button (page 47)**

29 **DUAL MODE SHUTTLE ring (pages 47 and 48)**

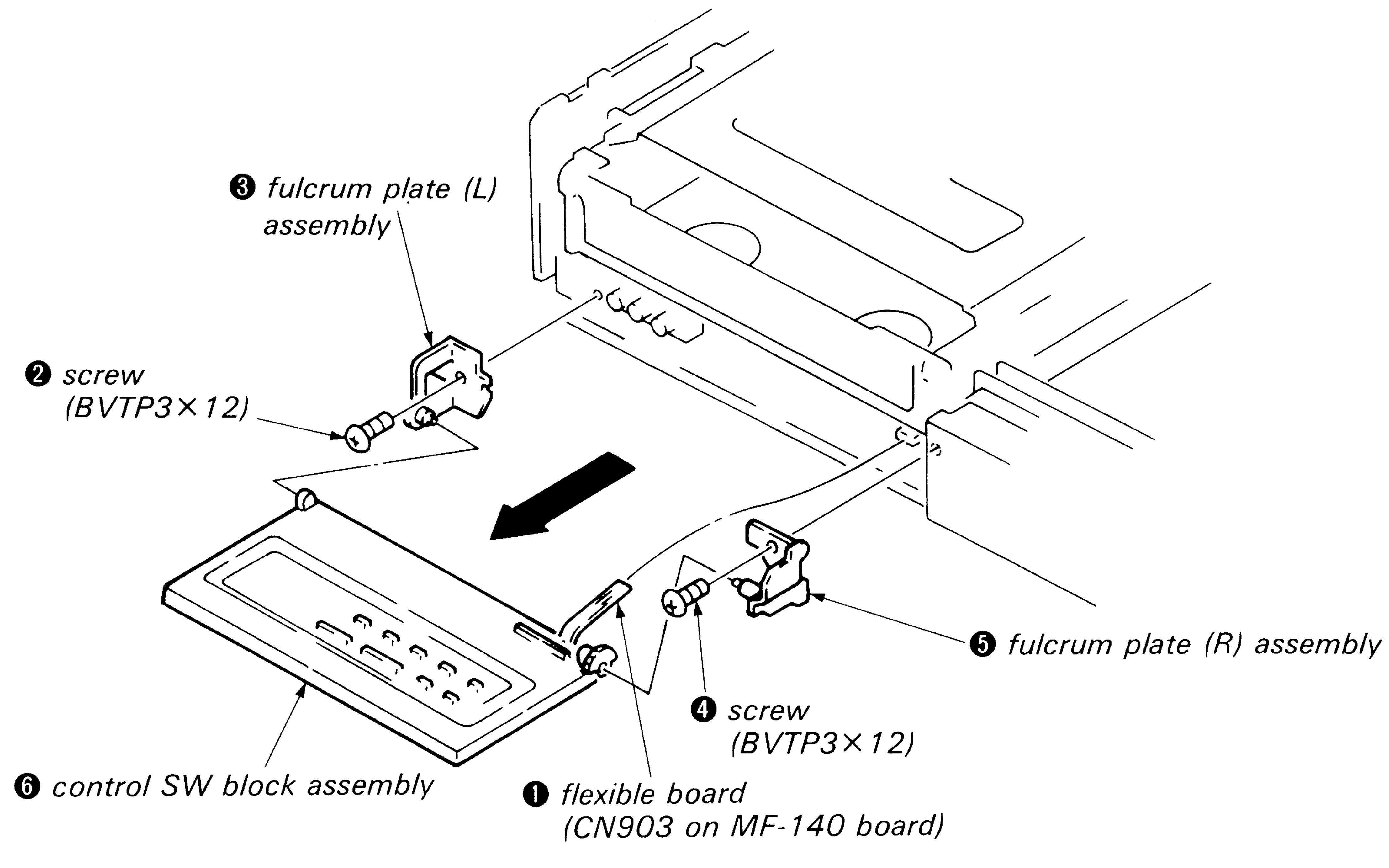
SECTION 2
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

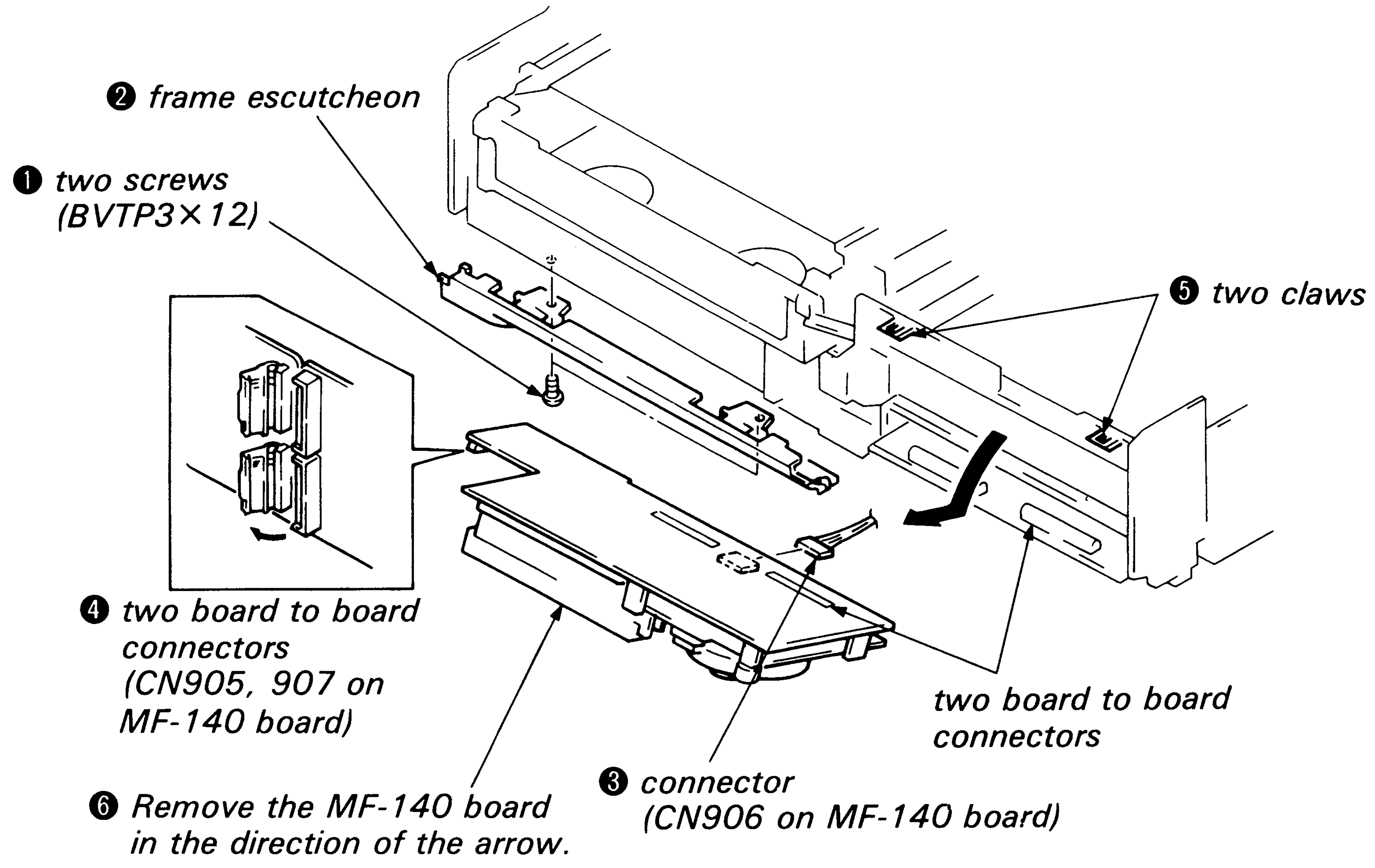
2-1. REMOVAL OF UPPER CASE, BOTTOM PLATE AND FRONT PANEL ASSEMBLIES


❶ two case screws
❸ upper case
❽ Open the control SW block assembly.
❷ two case screws
two claws
❼ bottom plate
❹ two screws (BVTP3×12)
❿ Remove the six claws and front panel assembly.
two claws
two claws
❻ two screws (BVTP3×12)
❺ three screws (BVTP3×12)
❾ shuttle ring with function button assembly

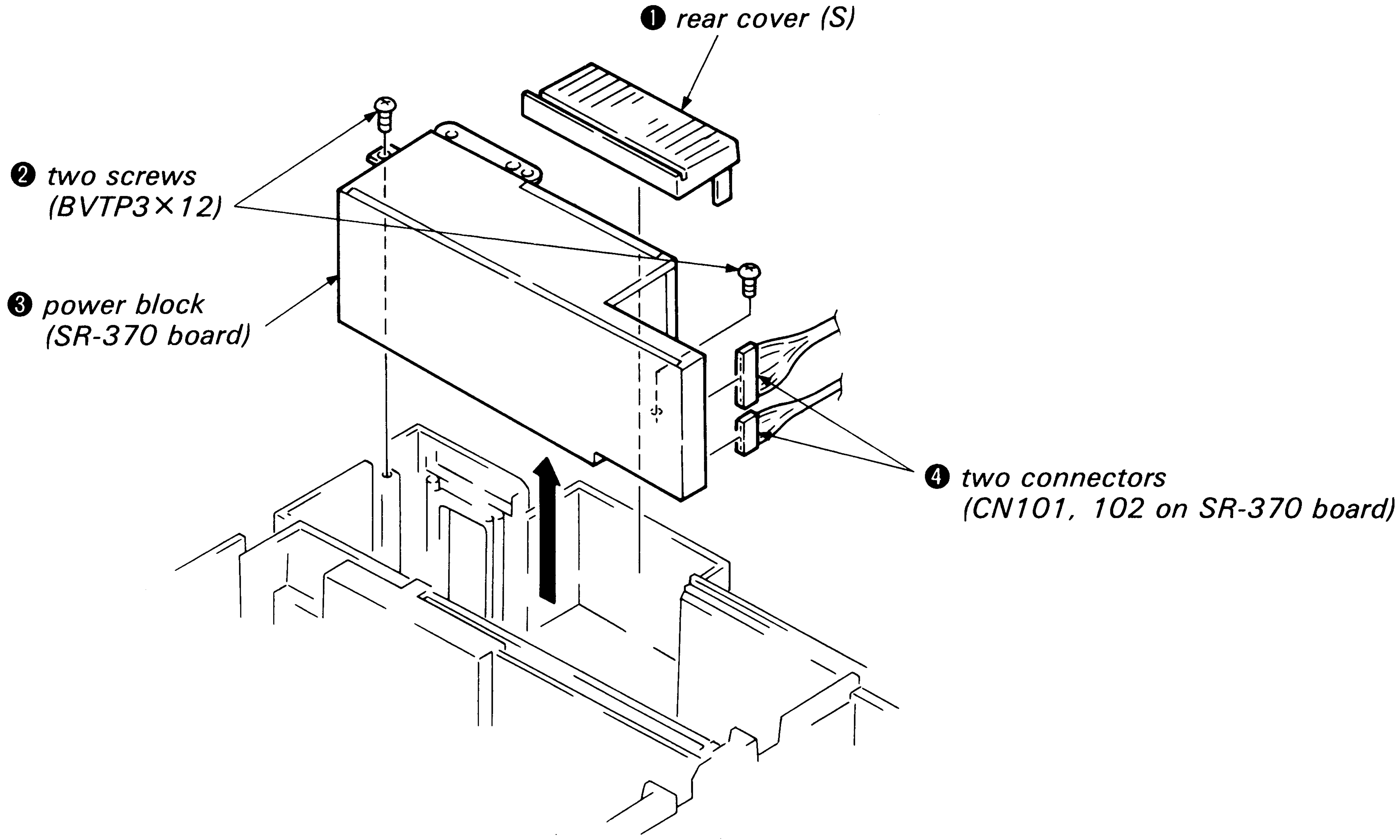
2-2. REMOVAL OF CONTROL SW BLOCK ASSEMBLY


❸ fulcrum plate (L) assembly
❷ screw (BVTP3×12)
❺ fulcrum plate (R) assembly
❹ screw (BVTP3×12)
❻ control SW block assembly
❶ flexible board (CN903 on MF-140 board)

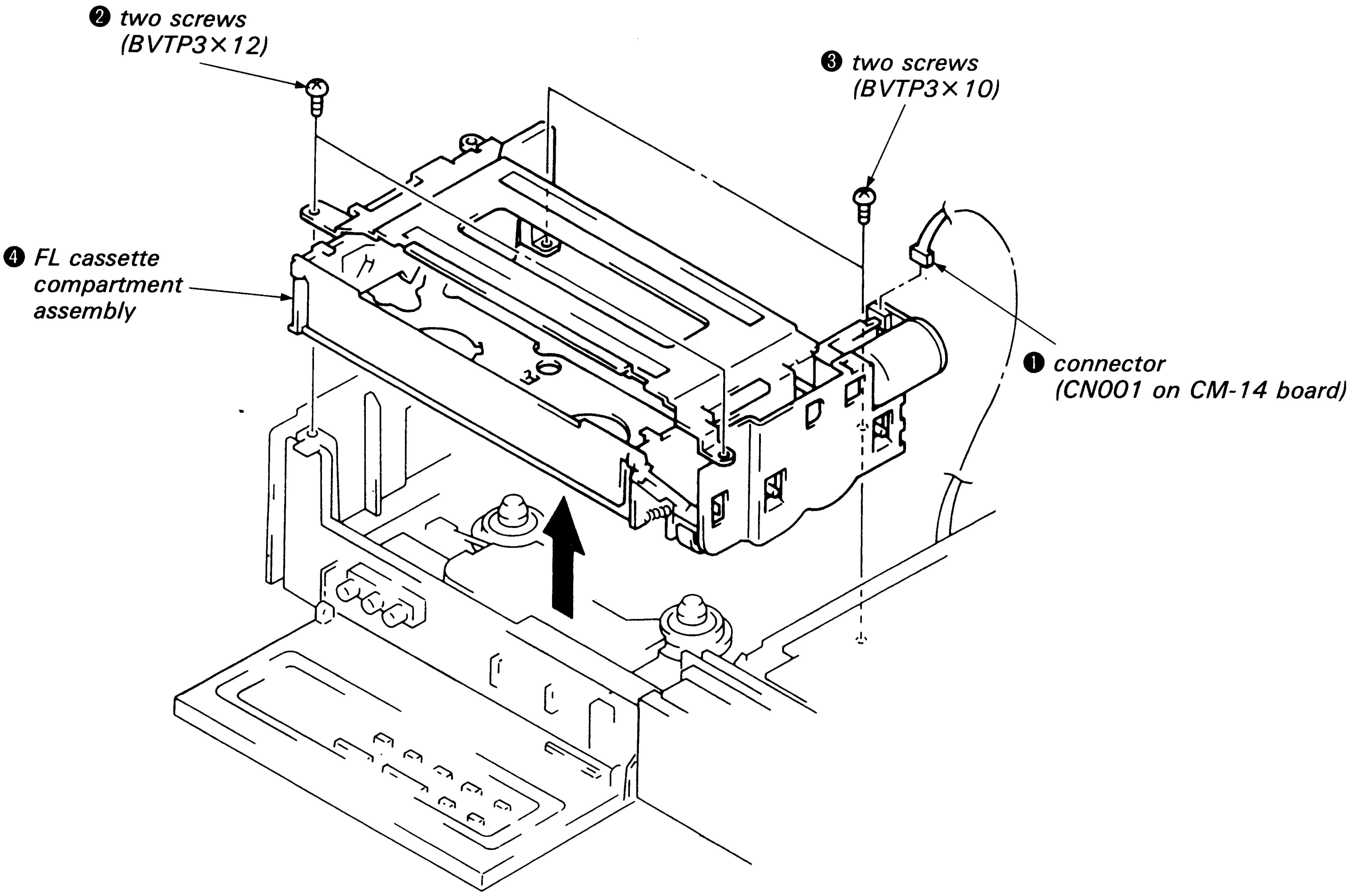
2-3. REMOVAL OF MF-140 BOARD


❷ frame escutcheon
❶ two screws (BVTP3×12)
❺ two claws
❹ two board to board connectors (CN905, 907 on MF-140 board)
two board to board connectors
❸ connector (CN906 on MF-140 board)
❻ Remove the MF-140 board in the direction of the arrow.

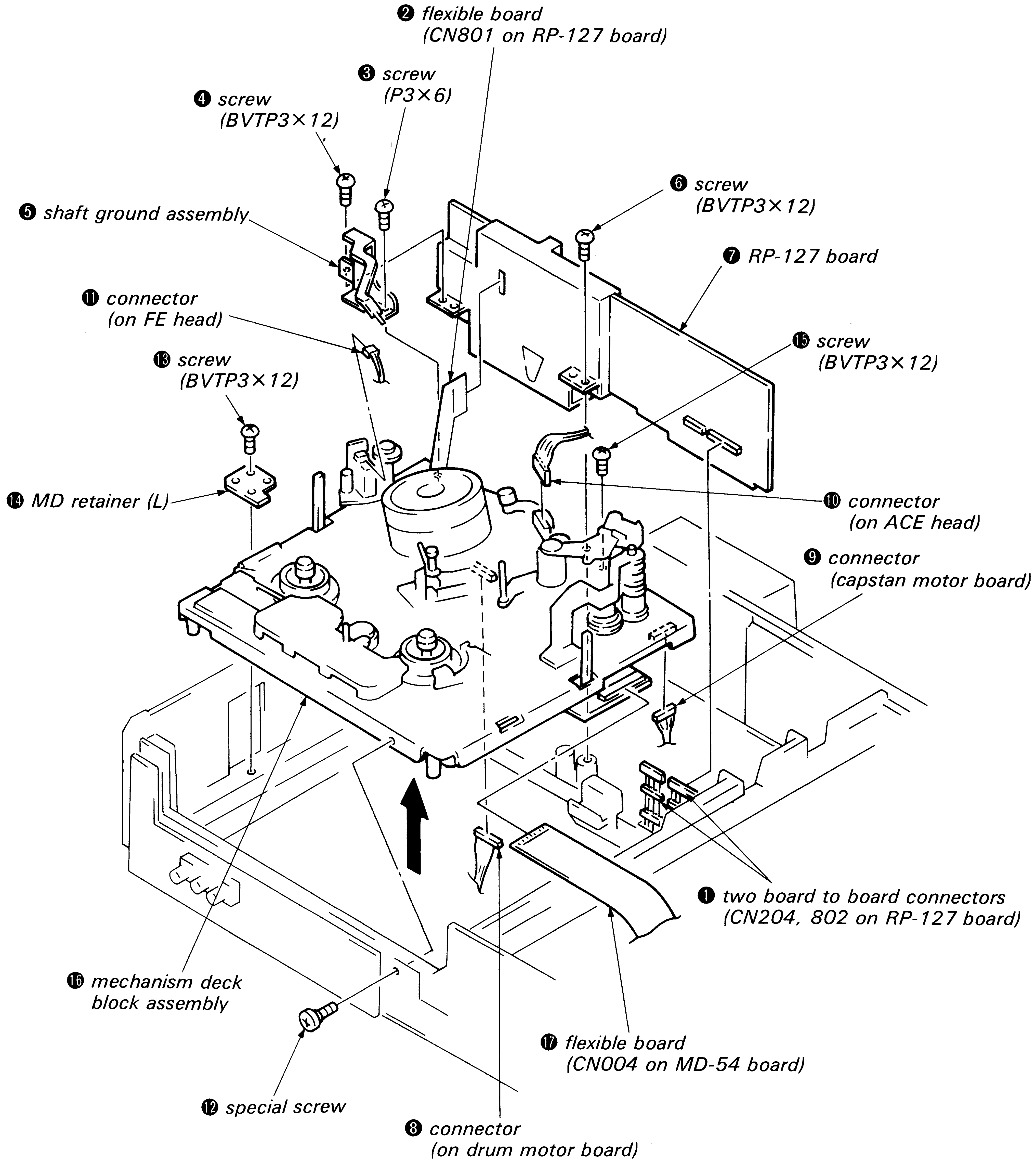
2-4. REMOVAL OF POWER BLOCK (SR-370 BOARD)


❶ rear cover (S)
❷ two screws (BVTP3×12)
❸ power block (SR-370 board)
❹ two connectors (CN101, 102 on SR-370 board)

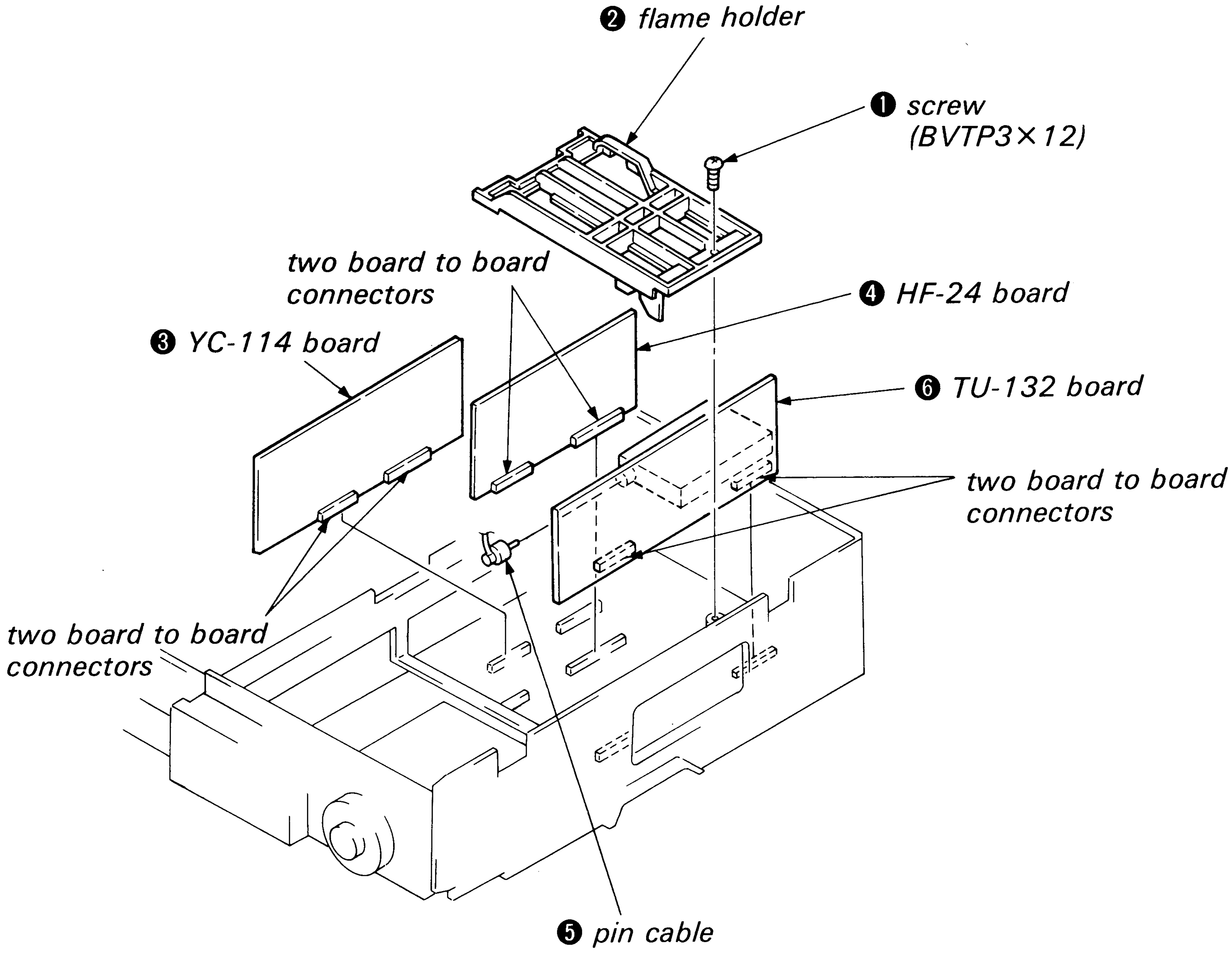
2-5. REMOVAL OF FL CASSETTE COMPARTMENT ASSEMBLY


❷ two screws
(BVTP3×12)
❸ two screws
(BVTP3×10)
❹ FL cassette
compartment
assembly
❶ connector
(CN001 on CM-14 board)

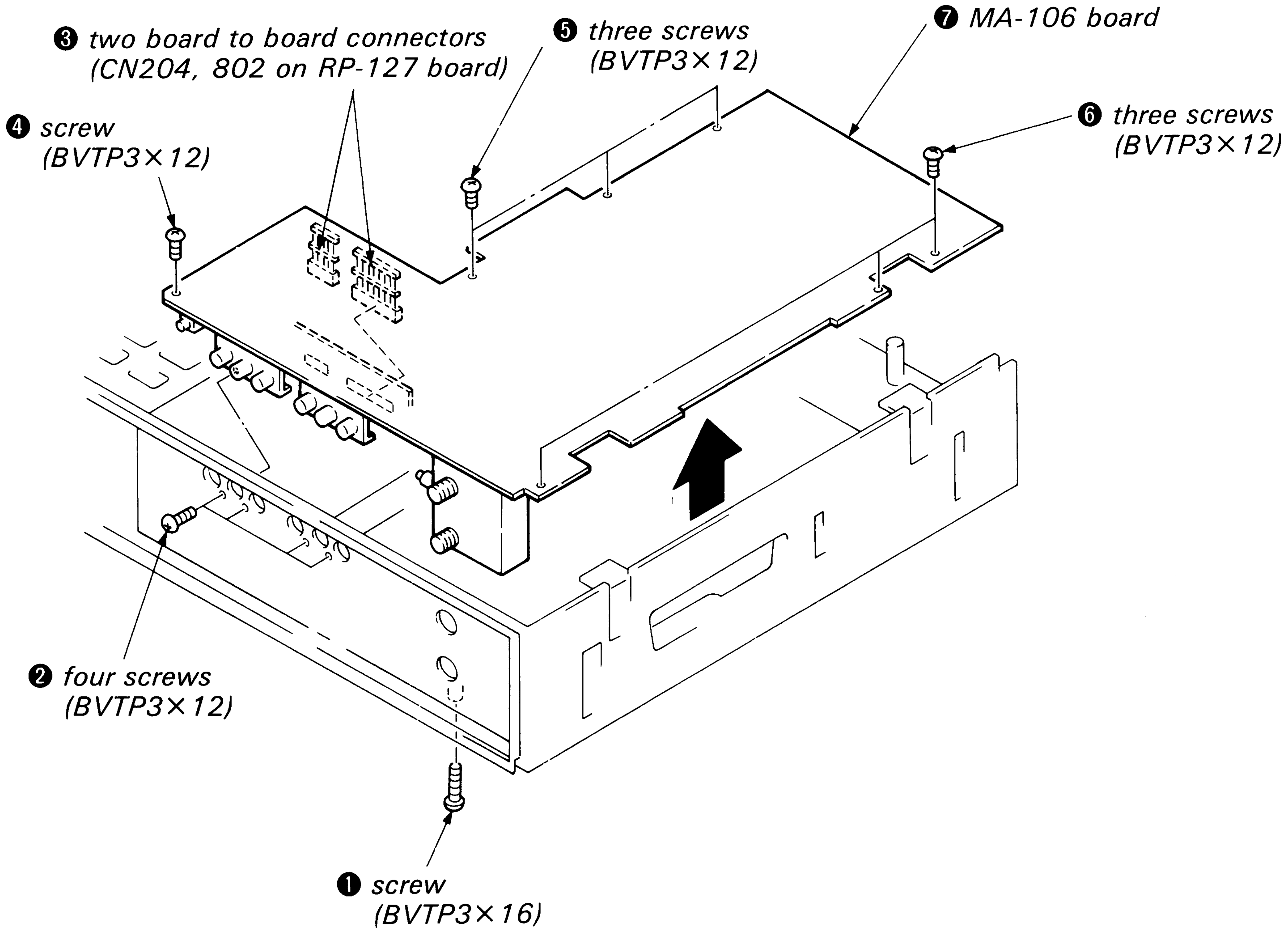
2-6. REMOVAL OF RP-127 BOARD AND MECHANISM DECK BLOCK ASSEMBLY


❷ flexible board (CN801 on RP-127 board)
❸ screw (P3×6)
❹ screw (BVTP3×12)
❻ screw (BVTP3×12)
❺ shaft ground assembly
❼ RP-127 board
⓫ connector (on FE head)
⓯ screw (BVTP3×12)
⓭ screw (BVTP3×12)
⓮ MD retainer (L)
❿ connector (on ACE head)
❾ connector (capstan motor board)
❶ two board to board connectors (CN204, 802 on RP-127 board)
⓰ mechanism deck block assembly
⓱ flexible board (CN004 on MD-54 board)
⓬ special screw
❽ connector (on drum motor board)

2-7. REMOVAL OF HF-24, TU-132 AND YC-114 BOARDS


❷ flame holder
❶ screw
(BVTP3×12)
two board to board
connectors
❹ HF-24 board
❸ YC-114 board
❻ TU-132 board
two board to board
connectors
two board to board
connectors
❺ pin cable

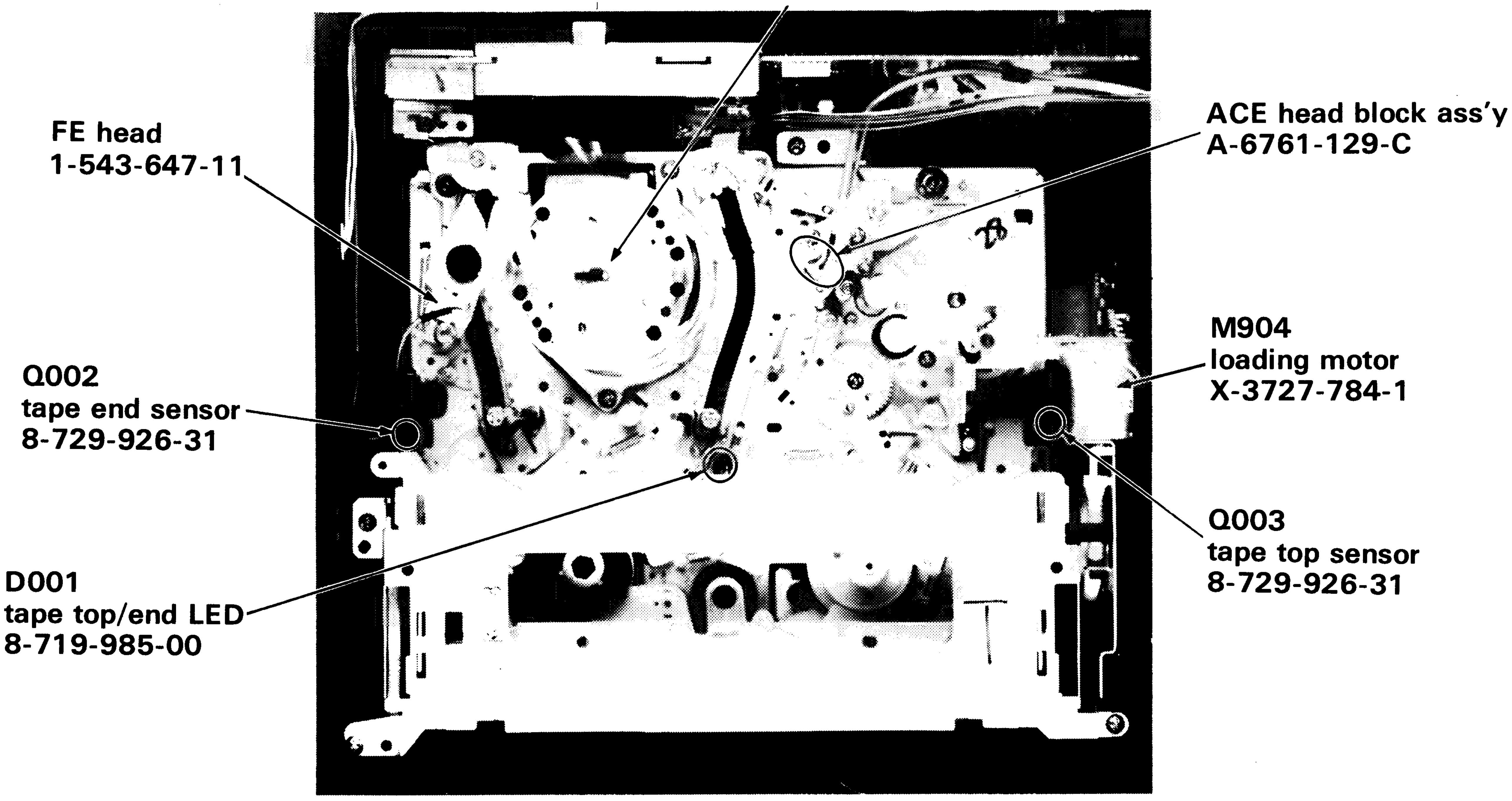
2-8. REMOVAL OF MA-106 BOARD


❸ two board to board connectors
(CN204, 802 on RP-127 board)
❺ three screws
(BVTP3×12)
❼ MA-106 board
❹ screw
(BVTP3×12)
❻ three screws
(BVTP3×12)
❷ four screws
(BVTP3×12)
❶ screw
(BVTP3×16)

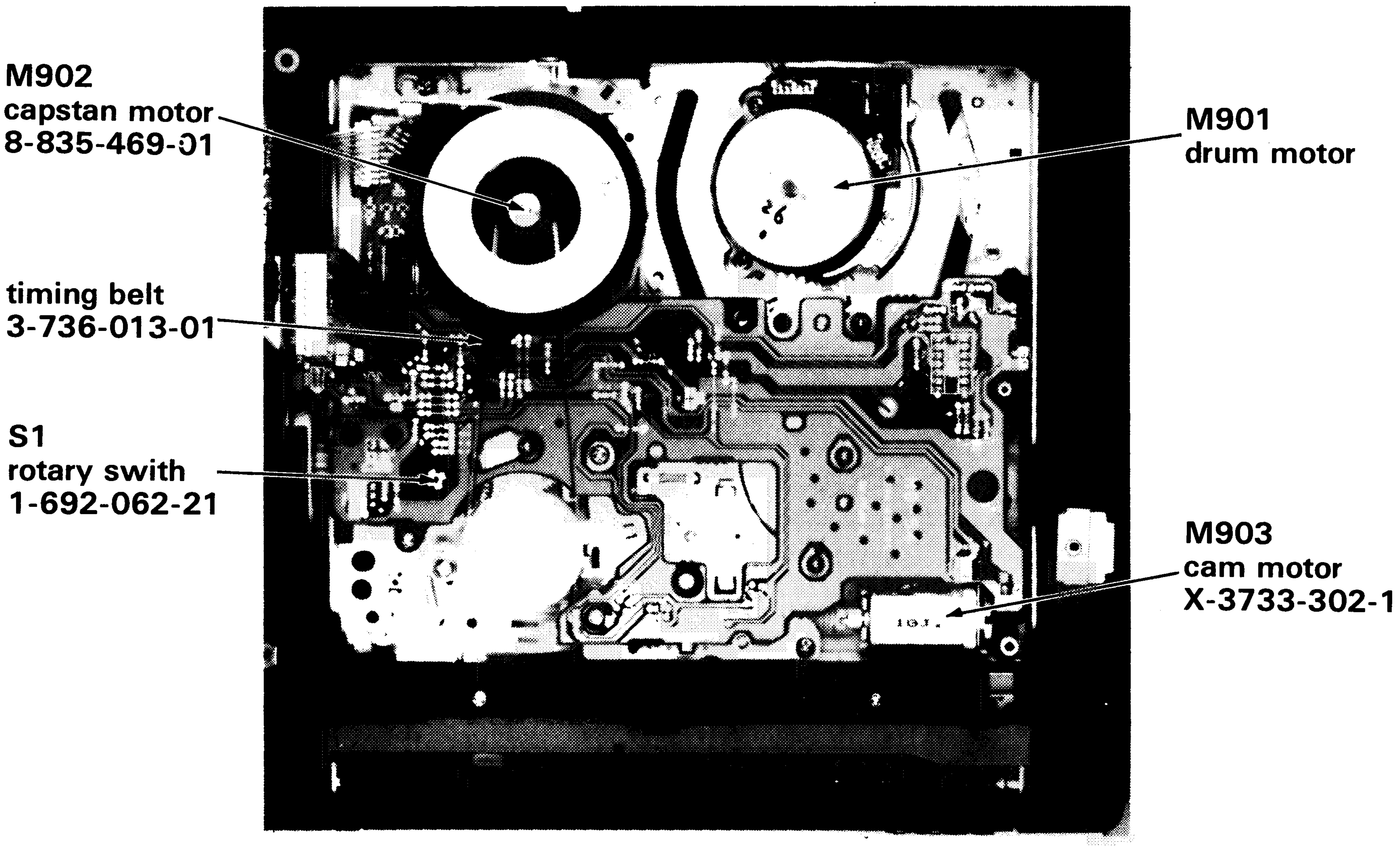
2-9. INTERNAL VIEWS

—Top Side—

SLV-595HF	SLV-696HF
drum ass'y (DZH-50A-R) 8-848-582-11	drum ass'y (DZH-49A-R) 8-848-580-11
upper drum ass'y (DZR-50-R) 8-848-583-01	upper drum ass'y (DZR-49-R) 8-848-581-01


FE head
1-543-647-11
Q002
tape end sensor
8-729-926-31
D001
tape top/end LED
8-719-985-00
ACE head block ass'y
A-6761-129-C
M904
loading motor
X-3727-784-1
Q003
tape top sensor
8-729-926-31

—Bottom Side—


M902
capstan motor
8-835-469-01
timing belt
3-736-013-01
S1
rotary swith
1-692-062-21
M901
drum motor
M903
cam motor
X-3733-302-1

3-11. SERVO/SYSTEM CONTROL—MICROPROCESSOR PIN FUNCTION (MA-106 BOARD IC502)

Pin. No.	Port	I/O	Signal	Function
1	PB5／PPO13	O	RF SWP	Video switching pulse output
2	PB4／PPO12	O	Q VD	False VD pulse output
3	PB3／PPO11	O	Q HD ENBL	False HD voltage level control
4	PB2／PPO10	O	AF REC $\overline{P}$	"H" output when hi-fi audio REC
5	PB1／PPO9	O	REC $\overline{P}$	"H" output when video REC·PAUSE
6	PB0／PPO8	O	FE ON	Flaying erase ON/OFF output.
7	PC7／RTO7	O	REC CTL	REC CTL output
8	PC6／RTO6	O	INT VD	Internal VD signal. Not used
9	PC5／RTO5	O	RC CONT	Not used
10	PC4／RTO4	O	NA RECP	"H" when normal audio REC
11	PC3／RTO3	O	NA PB	"H" when normal audio playback
12	PC2／PPO18	O	CAM	CAM motor select
13	PC1／PPO17	O	CW	Clockwise/counterclockwise signal output
14	PC0／PPO16	O	LOAD	Load motor select
15	PJ7	I	CIN/REC PRF	Erasing protection tab, cassette IN detection input
16	PJ6	I	C DOWN	Cassette up/down detection input
17	PJ5	I	T SENS	T end sensor input
18	PJ4	I	S SENS	S end sensor input
19	PJ3	O	AF MIX	hi-fi/normal audio MIX control
20	PJ2	O	ANT VTR	RF modulator ON/OFF control
21	PJ1	I	STEREO	Tuner audio mode input
22	PJ0	I	BILING	Not used
23	PD7	O	TA MUTE	Tuner audio MUTE signal
24	PD6	O	STEP PLS	"H" when capstan step drive
25	PD5	O	DESCRAMBLE	Not used
26	PD4	O	TUNER/BS	Not used
27	PD3	O	BS MONITOR	Not used
28	PD2	O	CTL REC	"H" when CTR writing
29	PD1	O	CTL STEP	STEP motion control of CTL amp
30	PD0	O	INDEX	Index control. "H" when playback index writing or erasing.
31	PH7	O	F MONO	Tuner forced monaural signal
32	PH6	O	END LED	END sensor lamp drive output
33	PH5	O	CAP TPQ2	Capstan current control. "L" when FF/REW➡ stop
34	PH4	O	CAP TPQ1	Capstan current control. "L" when slow down
35	PH3	O	NOR A MUTE	"H" when normal audio MUTE
36	PH2	O	$\overline{\text{FULL ERS}}$	"L" when full erase head operation
37	PH1	O	A MUTE	Audio MUTE output
38	PH0	O	CAP STOP	Capstan STOP signal output
39	MP	I	MP	Fixed at "L" level
40	$\overline{\text{RST}}$	I	$\overline{\text{COSMO RST}}$	System reset input
41	Vss			GND
42	XTAL		XTAL	System clock 12 MHz
43	EXTAL		EXTAL	
44	$\overline{\text{CS0}}$	I	$\overline{\text{COSMO CS}}$	Chip select signal
45	SI0	I	SI0	Signal for serial communication
46	SO0	O	SO0	
47	$\overline{\text{SCK0}}$	I	$\overline{\text{SCK0}}$	
48	PF7／AN11	I	METER (L)	Level meter (L) input
49	PF6／AN10	I	METER (R)	Level meter (R) input

Pin. No.	Port	I/O	Signal	Function
50	PF5/AN9	O		Not used
51	PF4/AN8	I	AF SW POSI	VR input for hi-fi switching pulse position adjustment
52	AVss		AVss	GND
53	AV$_{REF}$		AV$_{REF}$	AD port reference input. UNSW 5V
54	AV$_{DD}$		AV$_{DD}$	UNSW 5V
55	PF3/AF7	I	MODE4	Mechanism section CAM encoder input
56	PF2/AN6	I	MODE3	
57	PF1/AN5	I	MODE2	
58	PF0/AN4	I	MODE1	
59	AN3	I	**DEW**	Not used
60	AN2	I	**RF ENV**	Video RF envelope input
61	AN1	I	AF ENV	hi-fi audio RF envelope input
62	AN0	I	RF SW POSI	VR input for RF SWP adjustment
63	PG7/EXI1	I	S REEL	S reel sensor input
64	PG6/EXI0	I	T REEL	T reel sensor input
65	PG5/SYNC1	I		Not used
66	PG4/SYNC0	I	**V SYNC**	Composite sync input
67	PG3/$\overline{\text{PBCTL}}$	I	PB CTL	Playback CTL input
68	PG2/DPG	I	DRM PG	Drum PG input
69	PG1/DFG	I	DRM FG	Drum FG input
70	PG0/CFG	I	CAP FG	Capstan FG input
71	PE7/**DAB1**	O	**OSD MUTE**	Video output mute signal
72	PE6/**DAB0**	O	CAP RVS	Capstan reverse signal output
73	PE5/**DAA1**	O	CAP D/A	Capstan error D/A output
74	PE4/**DAA0**	O	DRM D/A	Drum error D/A output
75	PE3/PWM1	O	**BASS BOOST**	Not used
76	PE2/PWM0	O	**BB MUTE**	"H" when audio MUTE
77	PE1/**EC/INT**	I	VD CTL	Playback CTL input
78	PE0/**INT0**	I		Not used
79	PI7/**SIL**	O	**NORM CONT1**	Normal audio select control signal
80	PI6/**SOL**	O	**NORM CONT2**	
81	PI5/$\overline{\textbf{SCKL}}$	O	**LINE1**	Video/audio input select signal
82	PI4/**INT1**	O	**LINE2**	
83	PI3/**TO**	O	**MONI R**	Audio output control signal
84	PI2/**PWM**	O	**MONI L**	
85	PI1/**PO**	I/O	**HEAD CONT**	Head select control
86	**TEX**	I		Not used
87	**TX**	O		Not used
88	Vss			GND
89	V$_{DD}$			UNSW 5V
90	N.C.	—		Connected to UNSW 5V
91	PA7/PP07	O	$\overline{\text{SP}}$	"L" when SP mode
92	PA6/PP06	O	EP	"H" when EP mode.
93	PA5/PP05	O	LP	"H" when LP mode
94	PA4/PP04	O	EDIT	"H" when EDIT
95	PA3/PP03	O	**V PB**	"L" when video playback
96	PA2/PP02	O	$\overline{\text{AF PB}}$	"L" when hi-fi audio playback
97	PA1/PP01	O	**RP PB**	"H" when video signal playback. Inverse signal of REC
98	PA0/PP00	O	**REC**	Rise up signal of head amp recording power
99	PB7/PP015	O		Not used
100	PB6/PP014	O	**AF SWP**	hi-fi switching pulse output

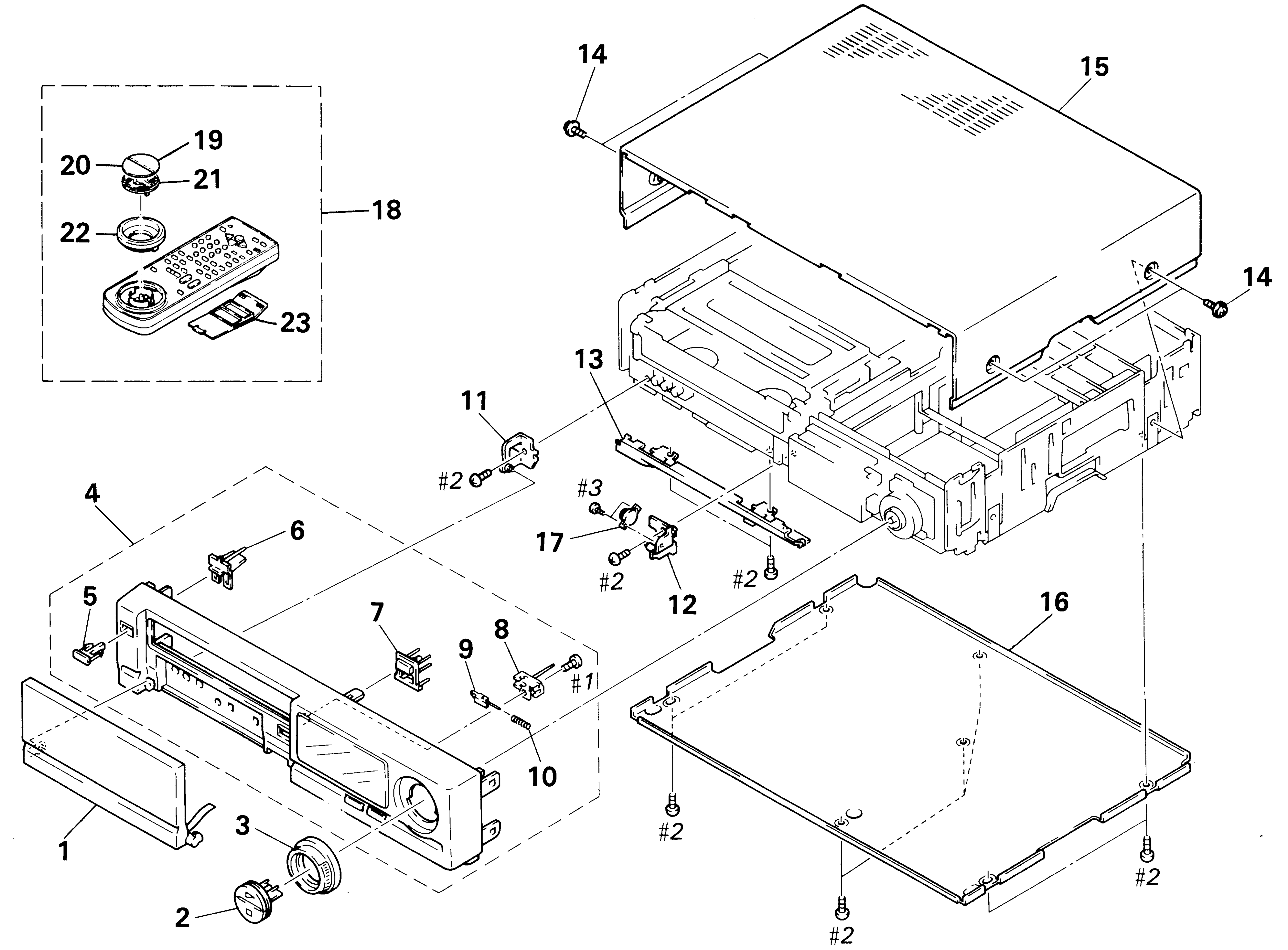
SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE(WHITE)...(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- hardware (#mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

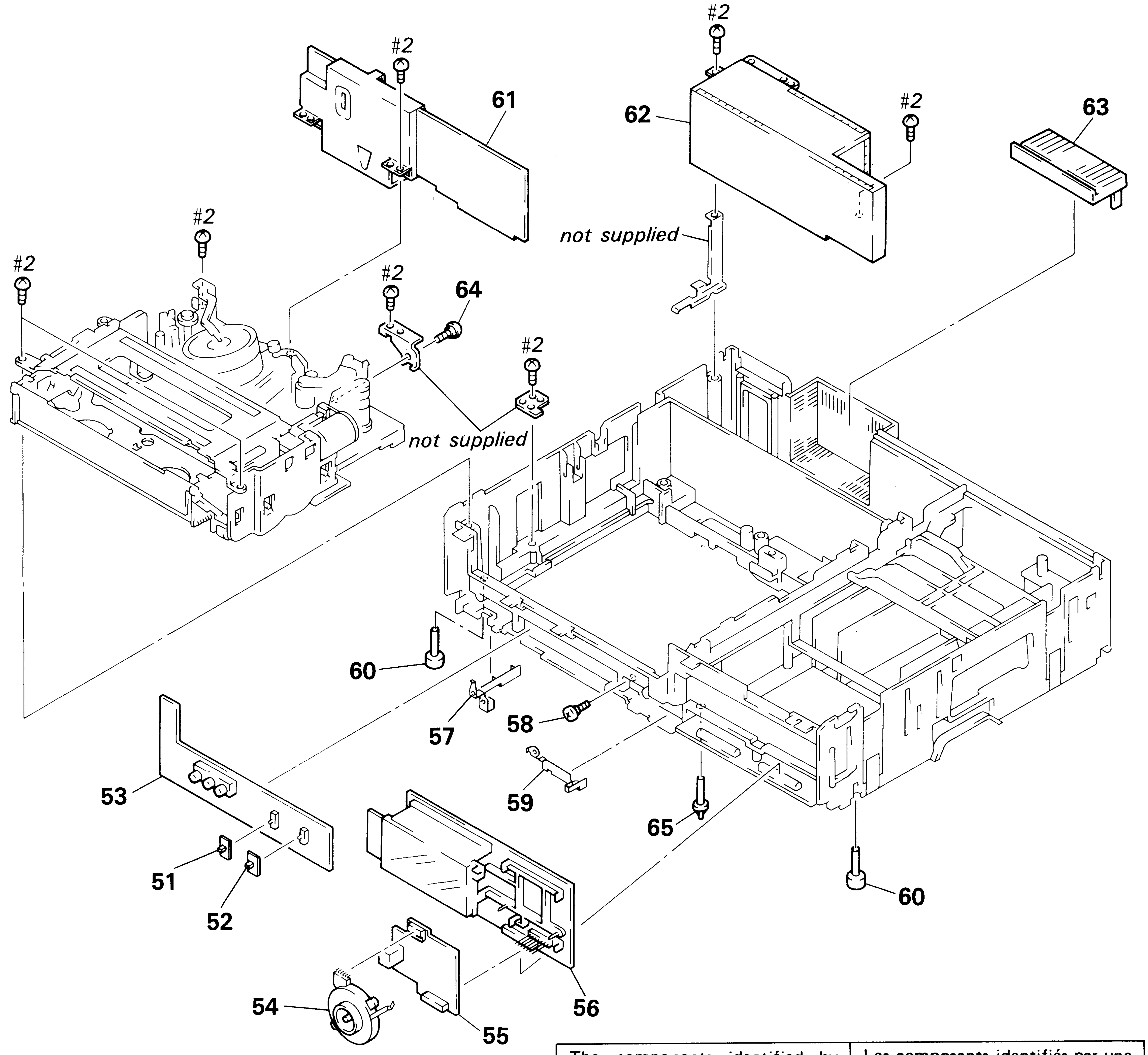
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. FRONT PANEL AND CABINET ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	1-466-627-21	SWITCH BLOCK, CONTROL (SLV-595HF)	
1	1-466-627-31	SWITCH BLOCK, CONTROL (SLV-696HF)	
2	X-3941-295-1	BUTTON ASSY, FUNCTION	
3	3-944-572-11	RING, SHUTTLE	
4	X-3941-015-1	PANEL ASSY, FRONT (SLV-595HF)	
4	X-3941-016-1	PANEL ASSY, FRONT (SLV-696HF)	
5	3-944-561-11	BUTTON, POWER	
6	3-944-562-01	CHIP, POWER BUTTON	
7	3-944-560-11	BUTTON, EJECT	
8	3-944-563-01	CASE, LOCK CLAW	
9	3-944-564-01	CLAW, LOCK	
10	3-944-565-01	SPRING, COMPRESSION	
11	X-3941-003-1	PLATE (L) ASSY, FULCRUM	
12	X-3941-002-1	PLATE (R) ASSY, FULCRUM	
13	3-944-570-11	ESCUTCHEON, FRAME	
14	3-710-901-41	SCREW, TAPPING	
15	3-944-553-11	COVER, UPPER	
* 16	3-944-552-01	PLATE, BOTTOM	
17	3-712-786-31	DAMPER, OIL	
18	1-465-915-11	REMOTE COMMANDER (RMT-V102D) (SLV-595HF)	
18	1-465-916-11	REMOTE COMMANDER (RMT-V112A) (SLV-696HF)	
19	3-941-617-11	BUTTON, PLAYBACK	
20	3-941-618-11	BUTTON, STOP	
21	3-941-619-01	HOLDER, DIAL	
22	3-941-616-01	RING, SHUTTLE	
23	3-943-535-01	COVER, BATTERY	

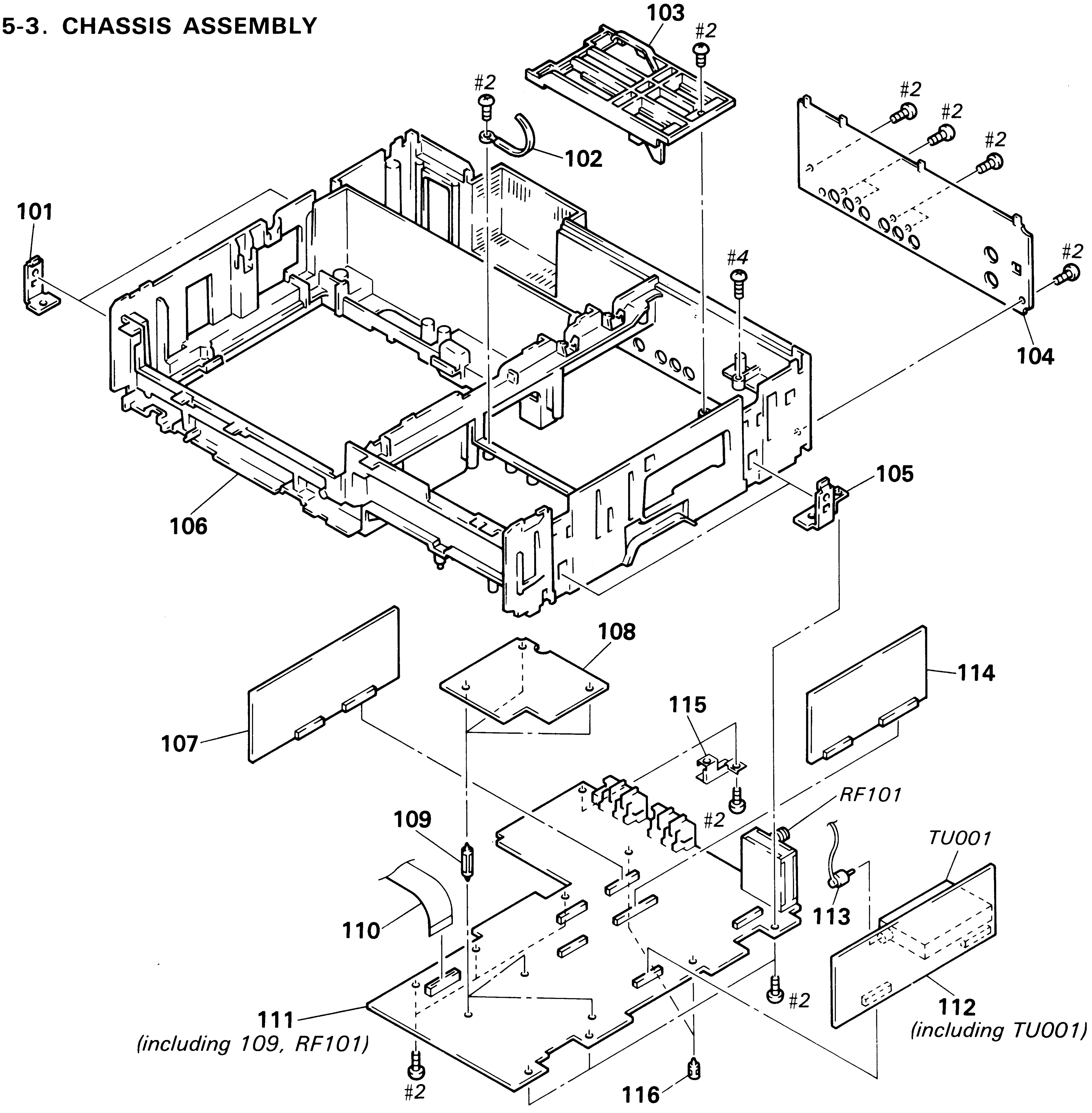
5-2. MODE CONTROL AND POWER BLOCK ASSEMBLIES



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

Ref. No.	Part No.	Description	Remark
51	3-946-831-01	KNOB, SELECTION (COMMAND MODE)	
52	3-744-217-01	KNOB, SELECTION (EDIT)	
* 53	A-6755-321-A	MF-141 BOARD, COMPLETE (SLV-595HF /SLV-696HF;Canadian)	
* 53	A-6755-324-A	MF-141 BOARD, COMPLETE (SLV-696HF;US)	
54	1-572-662-11	SWITCH, ROTARY	
* 55	A-6755-406-A	MF-143 BOARD, COMPLETE (SLV-696HF;US)	
* 55	A-6755-407-A	MF-143 BOARD, COMPLETE (SLV-595HF /SLV-696HF;Canadian)	
* 56	A-6721-440-A	MF-140 BOARD, COMPLETE (SLV-595HF)	
* 56	A-6721-442-A	MF-140 BOARD, COMPLETE (SLV-696HF)	
* 57	3-944-613-01	PLATE, GROUND, MF	
58	3-741-948-01	SCREW (3), SPECIAL (+) TAPPING	
* 59	3-944-614-01	PLATE, GROUND, JK	
60	3-945-944-01	FOOT (1500)	
* 61	A-6727-393-A	RP-127 BOARD, COMPLETE (SLV-595HF)	
* 61	A-6727-394-A	RP-127 BOARD, COMPLETE (SLV-696HF)	
⚠ 62	1-413-686-11	POWER BLOCK (SR-370 BOARD)	
* 63	3-946-136-01	COVER (S), REAR	
64	3-736-055-01	SCREW (3X8), TAPPING	
65	3-948-000-01	FOOT	

5-3. CHASSIS ASSEMBLY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#2
102
101
#2
#2
#2
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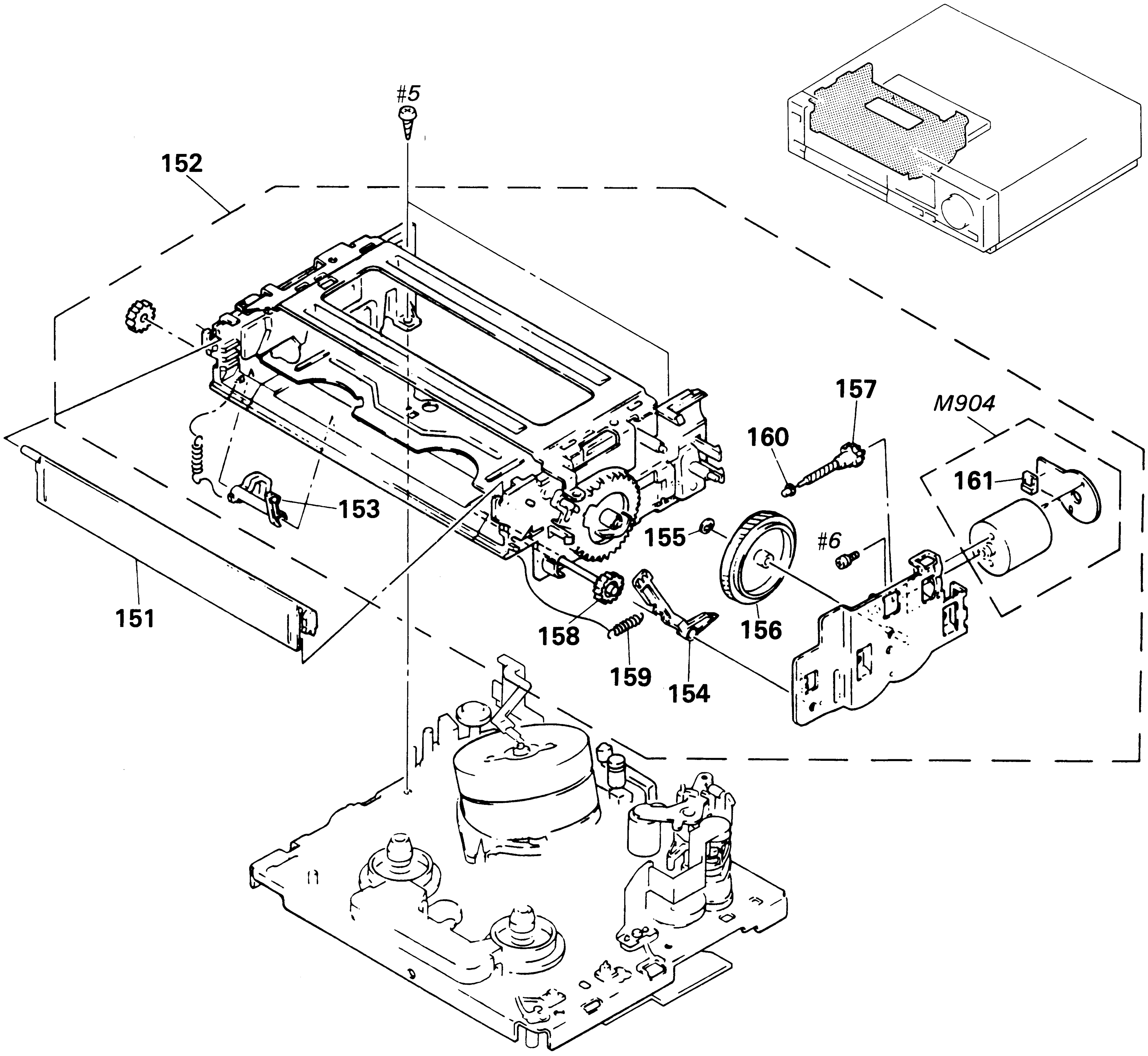
#2
104
105
106
108
114
107
115
RF101
109
#2
TU001
110
113
111
(including 109, RF101)
#2
112
(including TU001)
#2
116

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

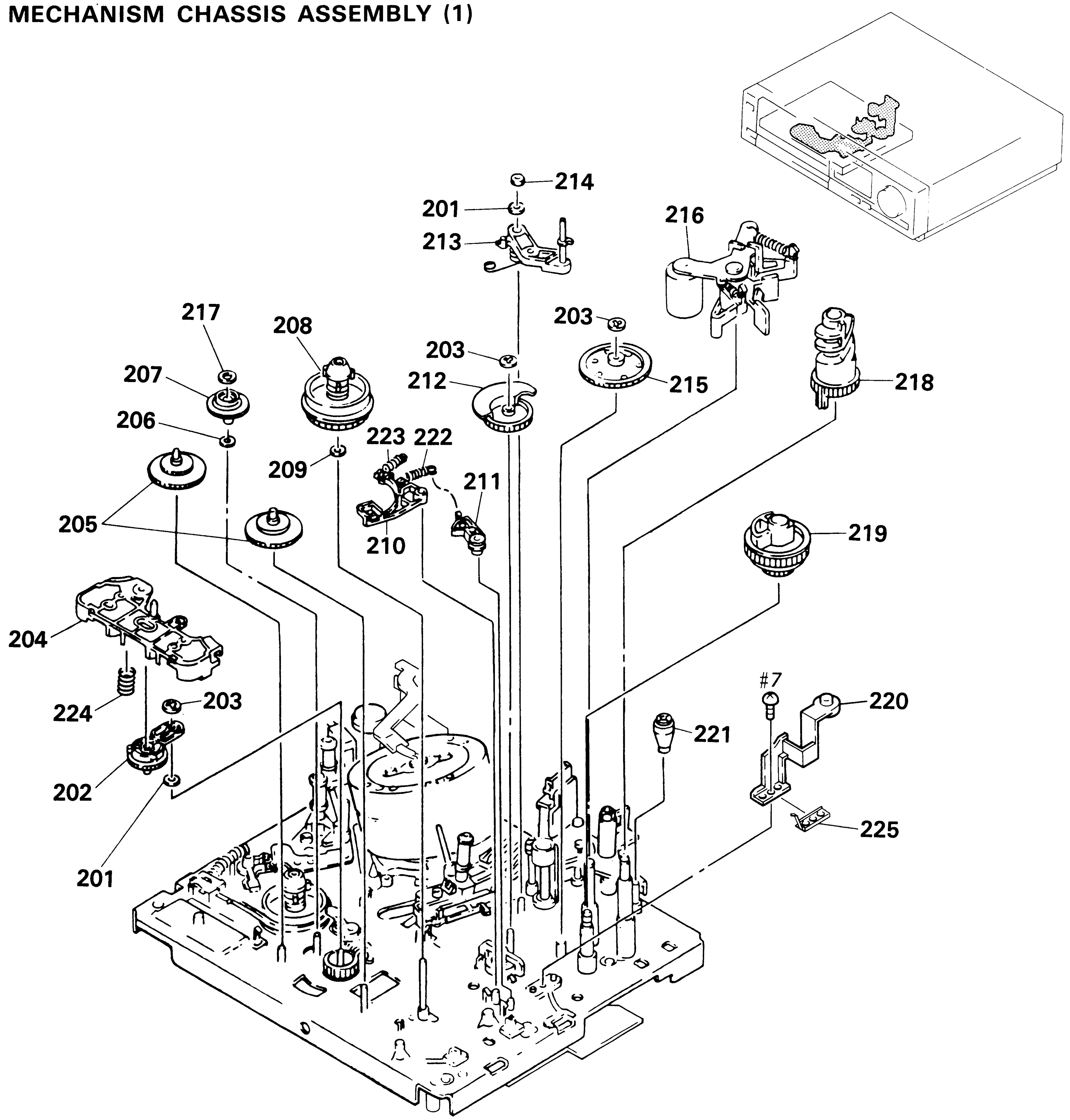
Ref. No.	Part No.	Description	Remark
* 101	3-741-992-01	STOPPER, UPPER CASE	
102	3-703-150-11	STOPPER, WIRING	
* 103	3-944-547-01	HOLDER (1500), FRAME	
104	3-944-546-21	PLATE, ORNAMENTAL, JACK (SLV-595HF)	
104	3-944-546-31	PLATE, ORNAMENTAL, JACK (SLV-696HF)	
* 105	3-944-544-01	STOPPER (S), UPPER COVER	
* 106	3-944-543-01	CHASSIS, MOLD	
* 107	A-6754-388-A	YC-114 BOARD, COMPLETE	
* 108	A-6754-389-A	CG-14 BOARD, COMPLETE	
109	3-945-945-01	SUPPORT (DIA. 3), PCB	
110	1-690-347-11	WIRE, FLAT TYPE (22 CORE)	
* 111	A-6755-322-A	MA-106 BOARD, COMPLETE (SLV-595HF)	
* 111	A-6755-325-A	MA-106 BOARD, COMPLETE (SLV-696HF)	
* 112	A-6754-426-A	TU-132 BOARD, COMPLETE	
113	1-555-110-00	CABLE, PIN	
* 114	A-6754-427-A	HF-24 BOARD, COMPLETE	
* 115	3-741-962-01	PLATE, GROUND, JMP	
116	3-682-057-11	SPACER (SMALL)	
⚠RF101	1-466-150-11	MODULATOR, RF (RFU-1025)	
⚠TU001	1-465-239-21	TUNER, ET	

5-4. FL CASSETTE COMPARTMENT ASSEMBLY



Ref. No.	Part No.	Description	Remark
151	3-945-199-11	DOOR, FL	
152	A-6751-453-A	FL BLOCK ASSY	
153	3-736-163-01	LEVER, ERASING PROTECTION	
154	3-736-167-01	ARM, DOOR SWITCHING	
155	3-696-510-01	WASHER (3), STOPPER	
156	3-736-164-01	WHEEL (FL), WORM	
157	3-736-100-01	GEAR (FL), WORM	
158	X-3727-775-2	GEAR (RIGHT) ASSY, MIDWAY	
159	3-738-285-01	SPRING, TENSION	
160	3-716-144-02	RETAINER, WORM	
161	1-506-482-11	CONNECTOR 3P, MALE	
M904	X-3727-784-1	MOTOR ASSY (LOADING)	

5-5. MECHANISM CHASSIS ASSEMBLY (1)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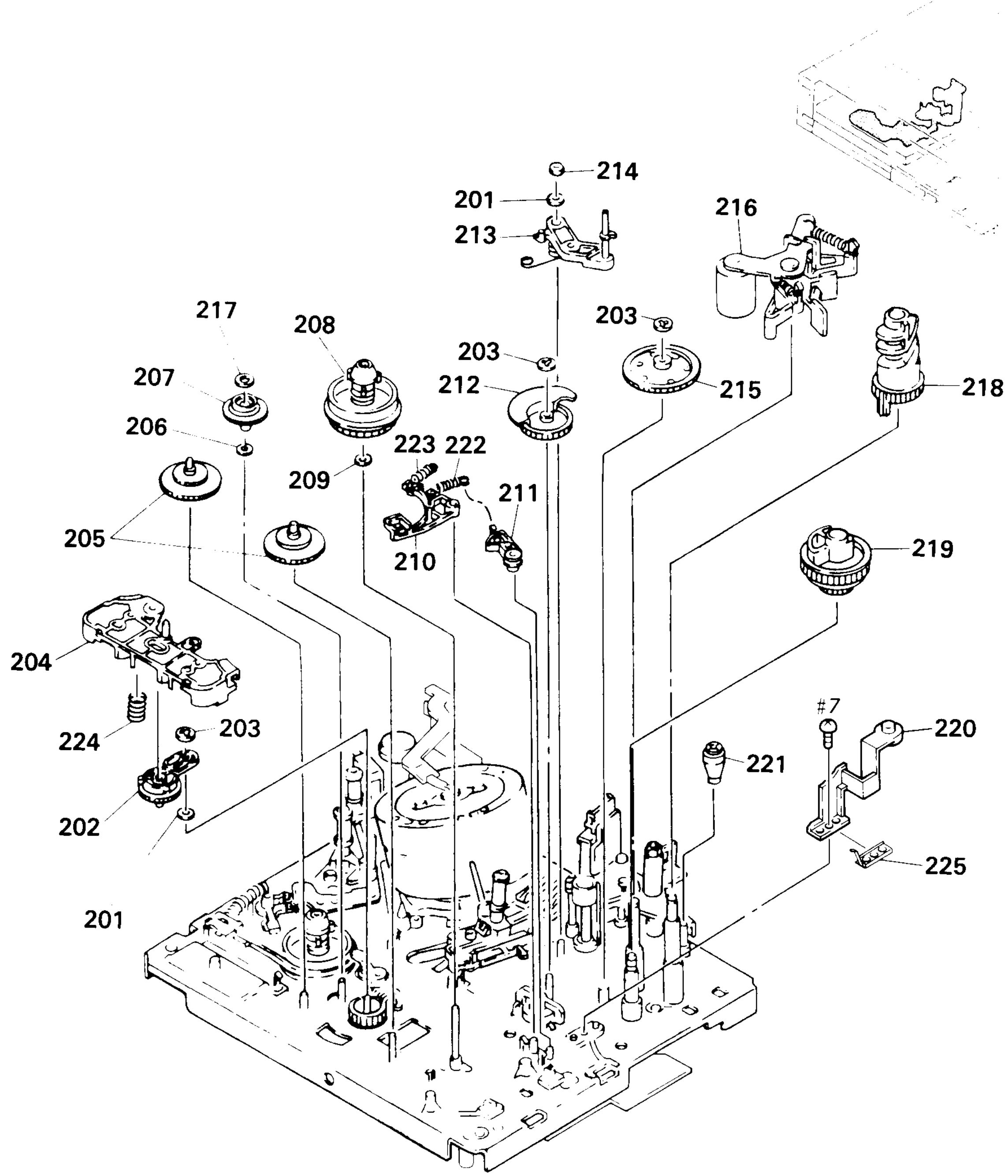
201

Ref. No.	Part No.	Description	Remark
201	3-701-438-11	WASHER, 2.5	
202	X-3727-776-1	ARM ASSY, PENDULUM	
203	3-669-595-00	WASHER (2), STOPPER	
204	3-736-172-02	RELEASE, LOCK, REEL	
205	X-3727-795-1	GEAR ASSY, RELAY	
206	3-736-074-01	RETAINER (SMALL), THRUST	
207	3-736-037-01	GEAR, REW	
208	X-3727-798-1	TABLE ASSY, REEL	
209	3-738-212-21	RETAINER, THRUST, REEL TABLE	
210	X-3733-335-1	BRAKE ASSY (AT), T SOFT	
211	3-736-105-01	ARM, REV BRAKE	
212	3-736-143-01	GEAR, RVS CAM	
213	X-3729-911-1	ARM ASSY, RVS	
214	3-736-740-01	NUT (M2X0.25), NYLON	
215	3-736-116-01	GEAR, COMMUNICATION	
216	X-3727-770-1	PINCH ROLLER BLOCK ASSY	
217	3-736-069-01	RETAINER, SPRING	
218	3-736-136-01	CAM, ELEVATOR	
219	3-943-700-01	GEAR (LO), PRESS CAM	
220	3-942-828-01	OPENNER, LID	
221	3-738-250-01	SCREW, AC ADJUSTMENT	
222	3-736-025-01	SPRING (REV BRAKE), TENSION	
223	3-736-024-01	SPRING, TENSION	
224	3-736-020-11	SPRING, COMPRESSION	
225	3-942-829-01	SPRING (2) (ATOM), GROUND, FL	

5-5. MECHANISM CHASSIS ASSEMBLY (1)


214
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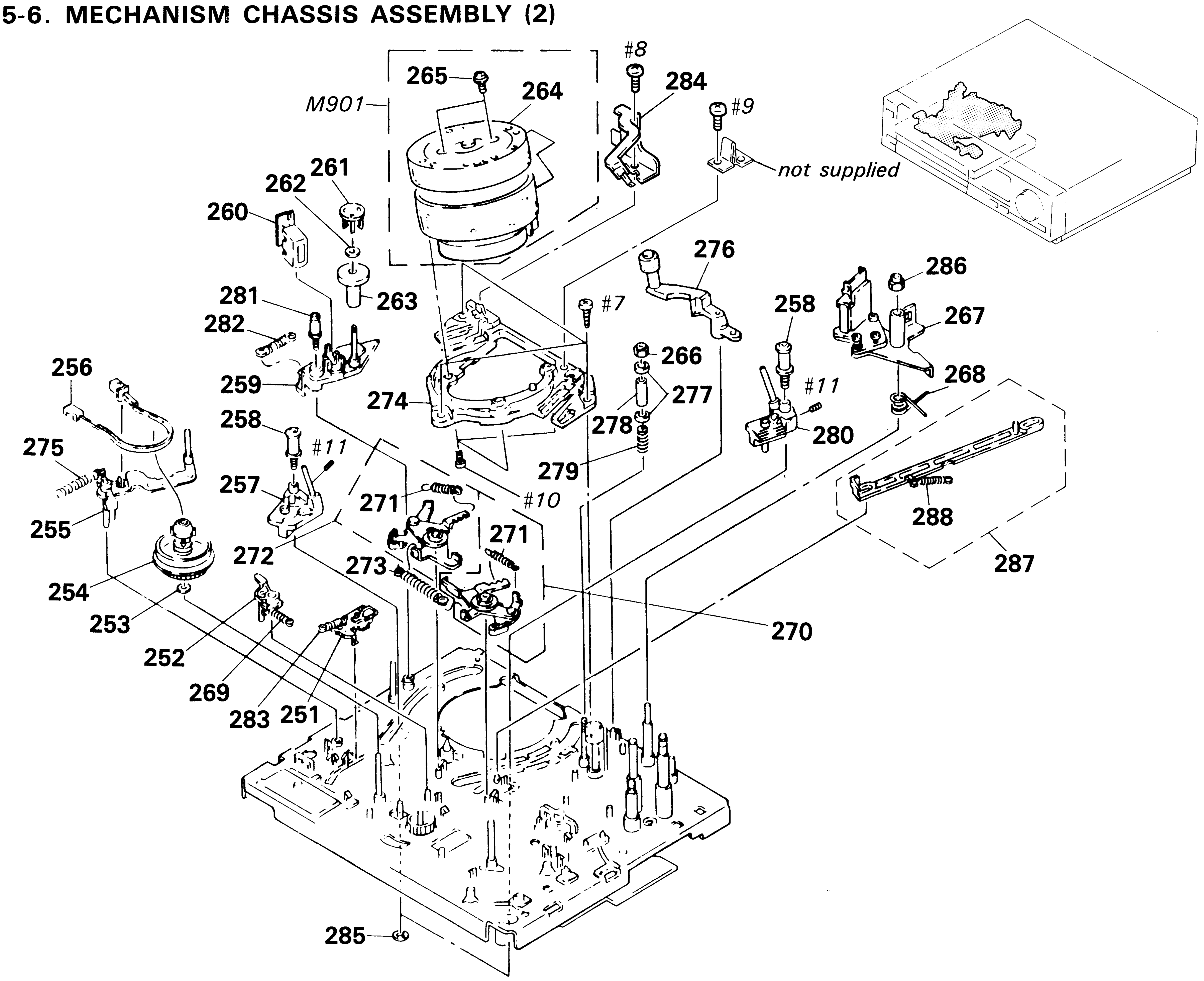
224
203
#7
220
221
202
225
201

Ref. No.	Part No.	Description	Remark
201	3-701-438-11	WASHER, 2.5	
202	X-3727-776-1	ARM ASSY, PENDULUM	
203	3-669-595-00	WASHER (2), STOPPER	
204	3-736-172-02	RELEASE, LOCK, REEL	
205	X-3727-795-1	GEAR ASSY, RELAY	
206	3-736-074-01	RETAINER (SMALL), THRUST	
207	3-736-037-01	GEAR, REW	
208	X-3727-798-1	TABLE ASSY, REEL	
209	3-738-212-21	RETAINER, THRUST, REEL TABLE	
210	X-3733-335-1	BRAKE ASSY (AT), T SOFT	
211	3-736-105-01	ARM, REV BRAKE	
212	3-736-143-01	GEAR, RVS CAM	
213	X-3729-911-1	ARM ASSY, RVS	
214	3-736-740-01	NUT (M2X0.25), NYLON	
215	3-736-116-01	GEAR, COMMUNICATION	
216	X-3727-770-1	PINCH ROLLER BLOCK ASSY	
217	3-736-069-01	RETAINER, SPRING	
218	3-736-136-01	CAM, ELEVATOR	
219	3-943-700-01	GEAR (LO), PRESS CAM	
220	3-942-828-01	OPENNER, LID	
221	3-738-250-01	SCREW, AC ADJUSTMENT	
222	3-736-025-01	SPRING (REV BRAKE), TENSION	
223	3-736-024-01	SPRING, TENSION	
224	3-736-020-11	SPRING, COMPRESSION	
225	3-942-829-01	SPRING (2) (ATOM), GROUND, FL	

5-6. MECHANISM CHASSIS ASSEMBLY (2)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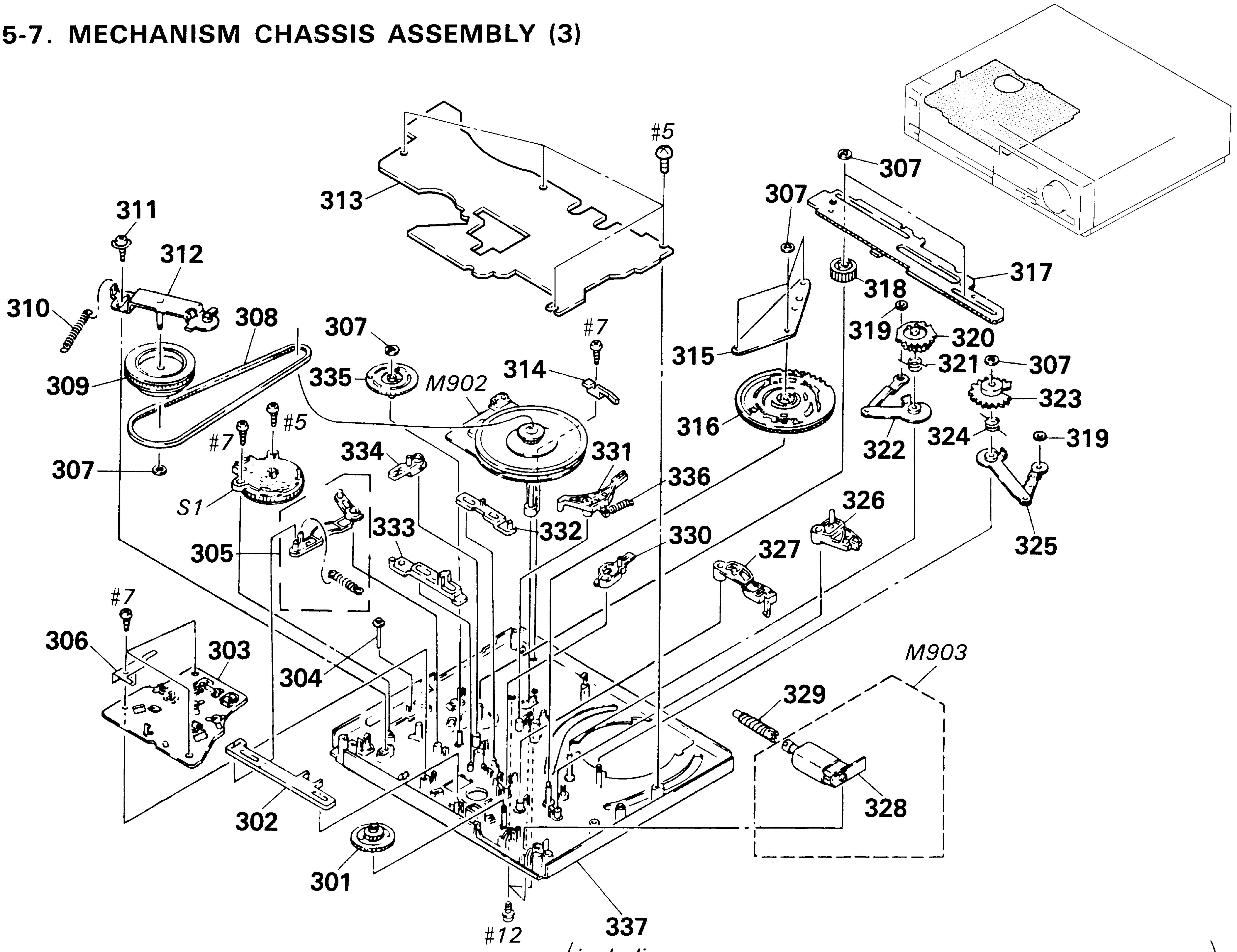
Ref. No.	Part No.	Description	Remark
251	A-6759-483-A	TAKE-UP BLOCK ASSY (AT), S	
252	3-736-075-01	BRAKE, S SOFT	
253	3-738-212-21	RETAINER, THRUST, REEL TABLE	
254	X-3941-194-1	TABLE ASSY, REEL, S	
255	3-736-151-11	ARM (POM), TENSION REGULATOR	
256	X-3727-797-1	BAND ASSY, TENSION REGULATOR	
257	X-3727-786-1	SHUTTLE (LEFT) ASSY	
258	X-3733-301-1	ROLLER ASSY, GUIDE	
259	X-3727-767-1	BASE ASSY, STABILIZER	
260	1-543-647-11	HEAD, FE	
261	3-736-082-01	RETAINER, TS THRUST	
262	3-741-925-01	RING, RETAINING	
263	X-3727-771-1	STABLILIZER ASSY, TAPE	
264	8-848-581-01	DRUM ASSY, ROTARY UPPER (DZR-49-R) (SLV-696HF)	
264	8-848-583-01	DRUM ASSY, ROTARY UPPER (DZR-50-R) (SLV-595HF)	
265	2-643-205-01	SCREW (PSW) 3X8	
266	3-942-866-01	NUT (M3) (3X0.5), NYLON	
267	A-6761-129-C	HEAD BLOCK ASSY, ACE	
268	3-944-833-01	SPRING, TORSION	
269	3-736-047-01	SPRING (S SOFT), TENSION	

Ref. No.	Part No.	Description	Remark
270	X-3729-926-1	BRAKE ASSY (2), T	
271	3-738-220-01	SPRING (MAIN BRAKE 2), TENSION	
272	X-3733-336-2	BRAKE ASSY (2) (AT), S	
273	3-738-221-01	SPRING (MAIN BRAKE 1), TENSION	
274	X-3727-791-2	BASE ASSY, DRUM	
275	3-733-389-11	SPRING, TENSION	
276	A-6747-267-A	ARM BLOCK ASSY (S), C ROLLER	
277	3-944-033-01	FLANGE, 7 GUIDE	
278	3-736-730-01	SLEEVE, #7 GUIDE	
279	3-749-099-01	SPRING (#7 GUIDE),COMPRESSION	
280	X-3727-787-1	SHUTTLE (RIGHT) ASSY	
281	X-3727-788-1	ROLLER ASSY, GUIDE, #2	
282	3-736-745-01	SPRING	
283	3-738-284-01	SPRING, TENSION	
284	X-3733-304-1	GROUND ASSY, SHAFT	
285	3-736-073-01	SLIDER, POLYETHYLENE	
286	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT	
287	X-3743-517-1	LEVER (S), RELEASE, C ROLLER	
288	3-736-735-03	SPRING, TENSION	
M901	8-848-580-11	DRUM ASSY (DZH-49A-R) (SLV-696HF)	
M901	8-848-582-11	DRUM ASSY (DZH-50A-R) (SLV-595HF)	

5-7. MECHANISM CHASSIS ASSEMBLY (3)



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including
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266, 268, 275, 277—280, 283, 285, 286, 301, 302,
304, 307—312, 315—327, 330—336, S1

Ref. No.	Part No.	Description	Remark
301	3-736-015-01	WHEEL (CAM), WORM	
302	3-736-158-01	PLATE, SLIDE, PENDULUM	
* 303	A-6739-096-A	CHASSIS BLOCK ASSY, SUB	
304	3-736-091-01	PIN, SWITCH	
305	X-3729-924-1	ARM, PENDULUM FUNCTION	
306	3-741-950-01	SPRING (AT), LEAF, SC GROUND	
307	3-669-595-00	WASHER (2), STOPPER	
308	3-736-013-01	BELT, TIMING	
309	X-3940-646-1	PULLEY ASSY	
310	3-736-089-01	SPRING, TENSION	
311	3-733-386-01	SCREW (3X8), WASHER	
312	X-3940-645-1	ARM ASSY, ADJUSTMENT	
* 313	A-6754-303-A	MD-54 BOARD, COMPLETE	
314	3-736-744-01	RETAINER, ROTOR	
315	3-733-396-01	HOLDER, CAM GEAR	
316	3-736-176-01	GEAR, CAM	
317	3-736-177-01	PLATE, SLIDE, MODE	
318	3-733-394-01	GEAR, RVS RELAY	
319	3-736-073-01	SLIDER, POLYETHYLENE	
320	3-736-148-01	GEAR (RIGHT), THREADING	
321	3-736-092-01	SPRING (RIGHT), TORSION	
322	X-3727-777-1	ARM (RIGHT) ASSY, THREADING	
323	3-736-147-01	GEAR (LEFT), THREADING	
324	3-736-040-01	SPRING (LEFT), TORSION	
325	X-3727-778-1	ARM (LEFT) ASSY, THREADING	
326	3-736-142-01	ARM, TENSION REGULATOR FUNCTION	
327	3-736-140-01	ARM, S TAKE-UP	
* 328	1-633-460-11	CA-41 BOARD	
329	3-733-395-01	GEAR (CAM), WORM	
330	3-733-397-01	ARM, BRAKE FUNCTION	
331	X-3733-338-1	BRAKE ASSY (AT), CAP	
332	3-733-398-01	PLATE, SLIDE, BRAKE	
333	3-736-103-01	PLATE, SLIDE, LIMITER	
334	3-736-016-01	ARM, LIMITER FUNCTION	
335	3-736-170-01	GEAR, RKB CAM	
336	3-738-237-01	SPRING (CAP BRAKE), TENSION	
* 337	A-6773-508-A	MD BLOCK ASSY	
M902	8-835-469-01	MOTOR, DC U-26J (CAPSTAN)	
M903	X-3733-302-1	MOTOR ASSY, CAM	
S1	1-692-062-21	SWITCH, ROTARY	

CA-41 CG-14

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- RESISTORS
  All resistors are in ohms
  METAL:Metal-film resistor
  METAL OXIDE:Metal Oxide-film resistor
  F:nonflammable
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indication parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

Ref. No.	Part No.	Description			Remark
	1-633-460-11	CA-41 BOARD	(Ref. No 5,000 Series)		
		***********			
		< CONNECTOR >			
CN001	1-506-482-11	CONNECTOR 3P, MALE			
**********	**********	**********	**********	**********	**********
*	A-6754-389-A	CG-14 BOARD, COMPLETE			
		*********************			
			(Ref. No 3,000 Series)		
		< CAPACITOR >			
C403	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C404	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C405	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C406	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C407	1-124-925-11	ELECT	2.2uF	20%	100V
C408	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C409	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C410	1-124-638-11	ELECT	22uF	20%	10V
C421	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C422	1-130-489-00	MYLAR	0.033uF	5%	50V
C423	1-124-925-11	ELECT	2.2uF	20%	100V
C424	1-130-485-00	MYLAR	0.015uF	5%	50V
C601	1-124-034-51	ELECT	33uF	20%	16V
C602	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C604	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C605	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C606	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C607	1-126-301-11	ELECT	1uF	20%	50V
C608	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C609	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C610	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C611	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C612	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C613	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C614	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C615	1-124-589-11	ELECT	47uF	20%	16V
C616	1-124-903-11	ELECT	1uF	20%	50V
C617	1-124-126-00	ELECT	47uF	20%	10V
C618	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C619	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C620	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C622	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C623	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C624	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C625	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C626	1-124-927-11	ELECT	4.7uF	20%	100V
C627	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C628	1-124-126-00	ELECT	47uF	20%	10V
C629	1-163-006-11	CERAMIC CHIP	560PF	10%	50V
		< CONNECTOR >			
* CN601	1-563-312-11	CONNECTOR, BOARD TO BOARD 12P			
* CN602	1-563-529-11	CONNECTOR, BOARD TO BOARD 9P			
		< DIODE>			
D420	8-719-101-43	DIODE	RD4.3E-L2		
D490	8-719-911-19	DIODE	1SS119		
D491	8-719-911-19	DIODE	1SS119		
D603	8-719-911-19	DIODE	1SS119		
D604	8-719-911-19	DIODE	1SS119		
		< IC >			
IC420	8-759-908-17	IC	TL082CPS		
IC601	8-759-996-03	IC	LVA519S		
IC602	8-759-056-22	IC	M50555-058SP		

Ref. No.	Part No.	Description	Remark
		< JUMPER RESISTOR >	
JR205	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L401	1-410-521-11	INDUCTOR 100uH	
L402	1-410-519-11	INDUCTOR 68uH	
L602	1-412-470-21	INDUCTOR 22uH	
L603	1-410-521-11	INDUCTOR 100uH	
L605	1-410-524-41	INDUCTOR 180uH	
L606	1-410-524-41	INDUCTOR 180uH	
L607	1-410-316-11	INDUCTOR 1uH	
L608	1-410-316-11	INDUCTOR 1uH	
		< TRANSISTOR >	
Q401	8-729-422-28	TRANSISTOR 2SD601A-R	
Q403	8-729-422-28	TRANSISTOR 2SD601A-R	
Q405	8-729-422-37	TRANSISTOR 2SB709A-R	
Q406	8-729-421-19	TRANSISTOR UN2213	
Q407	8-729-422-28	TRANSISTOR 2SD601A-R	
Q603	8-729-422-37	TRANSISTOR 2SB709A-R	
Q604	8-729-424-18	TRANSISTOR UN2113	
Q605	8-729-422-28	TRANSISTOR 2SD601A-R	
Q606	8-729-422-37	TRANSISTOR 2SB709A-R	
Q607	8-729-422-28	TRANSISTOR 2SD601A-R	
		< RESISTOR >	
R401	1-249-421-11	CARBON 2.2K 5% 1/4W	
R402	1-249-421-11	CARBON 2.2K 5% 1/4W	
R403	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R404	1-216-037-00	METAL CHIP 330 5% 1/10W	
R405	1-216-035-00	METAL CHIP 270 5% 1/10W	
R406	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R407	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R408	1-216-041-00	METAL CHIP 470 5% 1/10W	
R409	1-216-033-00	METAL CHIP 220 5% 1/10W	
R410	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R411	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R412	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R413	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R414	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R421	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R422	1-216-748-11	METAL CHIP 39K 1% 1/10W	
R423	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R424	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R425	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R601	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R602	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R603	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R604	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R605	1-216-677-11	METAL CHIP 12K 0.5% 1/10W	
R606	1-216-678-11	METAL CHIP 13K 0.5% 1/10W	
R607	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R608	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R609	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R610	1-216-041-00	METAL CHIP 470 5% 1/10W	
R611	1-216-041-00	METAL CHIP 470 5% 1/10W	
R612	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R613	1-216-041-00	METAL CHIP 470 5% 1/10W	
R614	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R615	1-216-043-00	METAL CHIP 560 5% 1/10W	
R617	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R618	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R619	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R620	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R621	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R622	1-216-043-00	METAL CHIP 560 5% 1/10W	
R623	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R624	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R625	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R626	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R627	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R628	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R629	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R630	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R631	1-216-045-00	METAL CHIP 680 5% 1/10W	
R632	1-216-041-00	METAL CHIP 470 5% 1/10W	
R633	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R634	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R635	1-216-073-00	METAL CHIP 10K 5% 1/10W	
		< CRYSTAL >	
X601	1-577-381-11	VIBRATOR, CRYSTAL (14.32MHz)	

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A-6754-427-A HF-24 BOARD, COMPLETE

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(Ref.No 3,000 Series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C204	1-126-101-11	ELECT 100uF 20% 16V	
C205	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C206	1-124-925-11	ELECT 2.2uF 20% 100V	
C207	1-124-126-00	ELECT 47uF 20% 10V	
C208	1-124-927-11	ELECT 4.7uF 20% 100V	
C209	1-124-907-11	ELECT 10uF 20% 50V	
C212	1-124-126-00	ELECT 47uF 20% 10V	
C213	1-124-126-00	ELECT 47uF 20% 10V	

HF-24 MA-106

Ref. No.	Part No.	Description			Remark
C214	1-124-126-00	ELECT	47uF	20%	10V
C215	1-124-907-11	ELECT	10uF	20%	50V
C216	1-124-927-11	ELECT	4.7uF	20%	100V
C217	1-124-925-11	ELECT	2.2uF	20%	100V
C218	1-124-925-11	ELECT	2.2uF	20%	100V
C219	1-124-907-11	ELECT	10uF	20%	50V
C221	1-137-370-11	FILM	0.01uF	5%	50V
C222	1-124-927-11	ELECT	4.7uF	20%	100V
C223	1-126-176-11	ELECT	220uF	20%	10V
C224	1-124-925-11	ELECT	2.2uF	20%	100V
C225	1-137-372-11	FILM	0.022uF	5%	50V
C226	1-124-907-11	ELECT	10uF	20%	50V
C227	1-126-233-11	ELECT	22uF	20%	50V
C228	1-137-365-11	FILM	0.0015uF	5%	50V
C229	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C230	1-137-366-11	FILM	0.0022uF	5%	50V
C231	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C232	1-124-443-00	ELECT	100uF	20%	10V
C233	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C234	1-124-903-11	ELECT	1uF	20%	50V
C235	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C236	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C237	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C239	1-137-366-11	FILM	0.0022uF	5%	50V
C240	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C241	1-137-365-11	FILM	0.0015uF	5%	50V
C242	1-126-233-11	ELECT	22uF	20%	50V
C243	1-124-925-11	ELECT	2.2uF	20%	100V
C244	1-124-907-11	ELECT	10uF	20%	50V
C245	1-137-372-11	FILM	0.022uF	5%	50V
C246	1-124-925-11	ELECT	2.2uF	20%	100V
C247	1-126-176-11	ELECT	220uF	20%	10V
C248	1-124-927-11	ELECT	4.7uF	20%	100V
C249	1-137-370-11	FILM	0.01uF	5%	50V
C250	1-163-031-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

CN201	1-573-834-11	CONNECTOR, BOARD TO BOARD 20P
CN202	1-573-826-11	CONNECTOR, BOARD TO BOARD 12P

< DIODE >

D201	8-719-911-19	DIODE 1SS119

< IC >

IC201	8-759-057-63	IC AN3937NFBP

< JUMPER RESISTOR >

Ref. No.	Part No.	Description			Remark
JR203	1-216-295-00	METAL CHIP	0	5%	1/10W
JR204	1-216-295-00	METAL CHIP	0	5%	1/10W
JR301	1-216-295-00	METAL CHIP	0	5%	1/10W
JR302	1-216-295-00	METAL CHIP	0	5%	1/10W
JR303	1-216-296-00	METAL CHIP	0	5%	1/8W
JR304	1-216-295-00	METAL CHIP	0	5%	1/10W
JR305	1-216-296-00	METAL CHIP	0	5%	1/8W
JR306	1-216-296-00	METAL CHIP	0	5%	1/8W
JR307	1-216-296-00	METAL CHIP	0	5%	1/8W
JR308	1-216-296-00	METAL CHIP	0	5%	1/8W
JR309	1-216-296-00	METAL CHIP	0	5%	1/8W
JR310	1-216-296-00	METAL CHIP	0	5%	1/8W

< RESISTOR >

R201	1-249-417-11	CARBON	1K	5%	1/4W
R202	1-249-417-11	CARBON	1K	5%	1/4W
R209	1-216-109-00	METAL CHIP	330K	5%	1/10W
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W
R218	1-216-679-11	METAL CHIP	15K	0.5%	1/10W
R219	1-216-073-00	METAL CHIP	10K	5%	1/10W
R220	1-216-074-00	METAL CHIP	11K	5%	1/10W
R221	1-216-049-00	METAL CHIP	1K	5%	1/10W
R222	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R223	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R224	1-216-083-00	METAL CHIP	27K	5%	1/10W
R225	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R226	1-216-073-00	METAL CHIP	10K	5%	1/10W
R227	1-216-049-00	METAL CHIP	1K	5%	1/10W
R228	1-216-109-00	METAL CHIP	330K	5%	1/10W

< VARIABLE RESISTOR >

RV201	1-241-628-11	RES, ADJ, CARBON 2.2K
RV202	1-230-523-11	RES, ADJ, METAL 10K
RV203	1-241-120-11	RES, ADJ, CARBON 2.2K
RV204	1-241-630-11	RES, ADJ, CARBON 10K
RV205	1-230-522-11	RES, ADJ, METAL 4.7K
RV206	1-241-628-11	RES, ADJ, CARBON 2.2K

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* A-6755-322-A MA-106 BOARD, COMPLETE (SLV-595HF)

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* A-6755-325-A MA-106 BOARD, COMPLETE (SLV-696HF)

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(Ref. No 2,000 Series)

3-831-441-XX SPACER, KNOB

3-945-945-01 SUPPORT (DIA. 3), PCB

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C104	1-124-126-00	ELECT	47uF	20%	10V	
C106	1-124-126-00	ELECT	47uF	20%	10V	
C109	1-124-126-00	ELECT	47uF	20%	10V	
C106	1-124-126-00	ELECT	47uF	20%	10V	
C109	1-124-126-00	ELECT	47uF	20%	10V	
C112	1-164-096-11	CERAMIC	0.01uF		50V	
C115	1-164-096-11	CERAMIC	0.01uF		50V	
C116	1-124-126-00	ELECT	47uF	20%	10V	
C117	1-124-472-11	ELECT	470uF	20%	10V	
C118	1-124-126-00	ELECT	47uF	20%	10V	
C201	1-124-907-11	ELECT	10uF	20%	50V	
C202	1-124-907-11	ELECT	10uF	20%	50V	
C203	1-124-907-11	ELECT	10uF	20%	50V	
C204	1-124-907-11	ELECT	10uF	20%	50V	
C205	1-124-126-00	ELECT	47uF	20%	10V	
C206	1-124-261-00	ELECT	10uF	20%	50V	
C207	1-124-261-00	ELECT	10uF	20%	50V	
C208	1-124-907-11	ELECT	10uF	20%	50V	
C209	1-124-261-00	ELECT	10uF	20%	50V	
C212	1-124-261-00	ELECT	10uF	20%	50V	
C250	1-124-907-11	ELECT	10uF	20%	50V	
C301	1-124-903-11	ELECT	1uF	20%	50V	
C302	1-124-126-00	ELECT	47uF	20%	10V	
C303	1-124-589-11	ELECT	47uF	20%	16V	
C304	1-126-301-11	ELECT	1uF	20%	50V	
C305	1-130-485-00	FILM	0.015uF	5%	50V	
C306	1-130-491-00	MYLAR	0.047uF	5%	50V	
C307	1-124-927-11	ELECT	4.7uF	20%	100V	
C308	1-124-589-11	ELECT	47uF	20%	16V	
C309	1-124-126-00	ELECT	47uF	20%	10V	
C310	1-164-083-11	CERAMIC	680PF	10%	50V	
C311	1-164-093-11	CERAMIC	0.0047uF	10%	25V	
C312	1-124-252-00	ELECT	0.33uF	20%	50V	
C313	1-124-903-11	ELECT	1uF	20%	50V	
C314	1-130-483-00	FILM	0.01uF	5%	50V	
C315	1-124-126-00	ELECT	47uF	20%	10V	
C316	1-164-083-11	CERAMIC	680PF	10%	50V	
C317	1-124-903-11	ELECT	1uF	20%	50V	
C318	1-126-233-11	ELECT	22uF	20%	50V	
C319	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C324	1-136-559-11	FILM	0.0047uF	10%	630V	(SLV-595HF)
C324	1-136-561-11	FILM	0.0068uF	10%	400V	(SLV-696HF)
C325	1-164-087-11	CERAMIC	0.0015uF	10%	50V	
C326	1-164-095-11	CERAMIC	0.01uF	10%	16V	

Ref. No.	Part No.	Description				Remark
C336	1-124-261-00	ELECT	10uF	20%	50V	
C337	1-124-261-00	ELECT	10uF	20%	50V	
C344	1-124-257-00	ELECT	2.2uF	20%	50V	
C345	1-124-257-00	ELECT	2.2uF	20%	50V	
C351	1-124-261-00	ELECT	10uF	20%	50V	
C411	1-130-491-00	MYLAR	0.047uF	5%	50V	
C415	1-124-489-11	ELECT	47uF	20%	16V	
C417	1-124-443-00	ELECT	100uF	20%	10V	
C418	1-164-085-11	CERAMIC	0.001uF	10%	50V	
C419	1-161-047-00	CERAMIC	0.0047uF	10%	50V	
C420	1-164-098-11	CERAMIC	0.047uF		12V	
C421	1-124-126-00	ELECT	47uF	20%	10V	
C422	1-162-849-11	CERAMIC	0.068uF	10%	16V	
C423	1-124-248-00	ELECT	22uF	20%	35V	
C424	1-162-851-11	CERAMIC	0.1uF	10%	16V	
C425	1-124-257-00	ELECT	2.2uF	20%	50V	
C508	1-126-101-11	ELECT	100uF	20%	16V	
C510	1-164-096-11	CERAMIC	0.01uF		50V	
C511	1-124-443-00	ELECT	100uF	20%	10V	
C513	1-124-126-00	ELECT	47uF	20%	10V	
C514	1-164-052-11	CERAMIC	18PF	5%	50V	
C516	1-164-085-11	CERAMIC	0.001uF	10%	50V	
C517	1-164-096-11	CERAMIC	0.01uF		50V	
C520	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C522	1-164-052-11	CERAMIC	18PF	5%	50V	
C523	1-161-057-00	CERAMIC	0.033uF	10%	50V	
C540	1-124-925-11	ELECT	2.2uF	20%	100V	
C560	1-164-159-11	CERAMIC	0.1uF		50V	

< JACK >

Ref. No.	Part No.	Description
CNJ005	1-507-562-00	JACK (CONTROL S IN)

< CONNECTOR >

Ref. No.	Part No.	Description
* CN001	1-568-786-11	PIN, CONNECTOR 9P
CN002	1-506-470-11	CONNECTOR 5P, MALE
CN003	1-563-599-11	CONNECTOR, FLEXIBLE 22P
CN005	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P
CN006	1-569-339-11	CONNECTOR, BOARD TO BOARD 7P
CN007	1-573-844-11	CONNECTOR, BOARD TO BOARD 12P
* CN008	1-508-742-00	PIN, CONNECTOR 3P
CN009	1-573-846-11	CONNECTOR, BOARD TO BOARD 14P
CN010	1-573-844-11	CONNECTOR, BOARD TO BOARD 12P
CN011	1-573-852-11	CONNECTOR, BOARD TO BOARD 20P
* CN012	1-506-775-11	CONNECTOR, BOARD TO BOARD 12P
* CN013	1-508-797-00	PIN, CONNECTOR 4P
* CN014	1-508-742-00	PIN, CONNECTOR 3P (SLV-595HF)
* CN015	1-560-894-00	PIN, CONNECTOR 6P
CN016	1-573-844-11	CONNECTOR, BOARD TO BOARD 12P

MA-106

Ref. No.	Part No.	Description	Remark
CN017	1-573-844-11	CONNECTOR, BOARD TO BOARD 12P	
* CN018	1-568-790-11	PIN, CONNECTOR 13P	
CN020	1-580-847-11	CONNECTOR, BOARD TO BOARD 15P	
CN021	1-691-276-11	CONNECTOR, BOARD TO BOARD 13P	
CN022	1-566-126-11	CONNECTOR, BOARD TO BOARD 9P	
CNJ001	1-565-351-41	JACK, PIN 3P (LINE IN1)	
CNJ002	1-565-351-41	JACK, PIN 3P (LINE OUT)	

< DIODE >

Ref. No.	Part No.	Description	
D202	8-719-911-19	DIODE	1SS119
D203	8-719-911-19	DIODE	1SS119
D302	8-719-911-19	DIODE	1SS119
D331	8-719-911-19	DIODE	1SS119
D332	8-719-911-19	DIODE	1SS119
D333	8-719-911-19	DIODE	1SS119
D334	8-719-911-19	DIODE	1SS119
D401	8-719-911-19	DIODE	1SS119
D410	8-719-101-47	DIODE	RD4.7E-L2
D501	8-719-911-19	DIODE	1SS119
D502	8-719-911-19	DIODE	1SS119
D505	8-719-911-19	DIODE	1SS119
D506	8-719-911-19	DIODE	1SS119
D507	8-719-200-82	DIODE	11ES2
D521	8-719-109-60	DIODE	RD2.7ES-B2

< IC >

Ref. No.	Part No.	Description	
IC102	8-759-511-44	IC	LVA522SA
IC201	8-759-520-50	IC	BH7733S
IC301	8-759-805-20	IC	LA7297
IC304	8-759-632-94	IC	M5223L
IC402	8-759-246-14	IC	TA8823N
⚠IC501	8-759-983-45	IC	BA6238A
IC502	8-752-835-23	IC	CXP80724-027Q

< COIL >

Ref. No.	Part No.	Description	
L101	1-410-521-11	INDUCTOR	100uH
L102	1-410-971-11	INDUCTOR	10uH
L301	1-410-089-11	INDUCTOR	15mH
L302	1-410-120-11	INDUCTOR	1.2mH
L403	1-410-521-11	INDUCTOR	100uH
L501	1-410-971-11	INDUCTOR	10uH
L607	1-410-316-11	INDUCTOR	1uH
L608	1-410-316-11	INDUCTOR	1uH

< TRANSISTOR >

Ref. No.	Part No.	Description		Remark
Q101	8-729-423-42	TRANSISTOR	2SA1309A-R	
Q210	8-729-423-35	TRANSISTOR	2SC3311A-R	
Q211	8-729-209-15	TRANSISTOR	2SD2012	
⚠Q301	8-729-140-96	TRANSISTOR	2SD774-34	
⚠Q302	8-729-140-97	TRANSISTOR	2SB734-34	(SLV-696HF)
Q304	8-729-423-42	TRANSISTOR	2SA1309A-R	
Q305	8-729-102-14	TRANSISTOR	2SD1021-F	
Q306	8-729-102-14	TRANSISTOR	2SD1021-F	
Q502	8-729-422-71	TRANSISTOR	UN411L	
Q510	8-729-900-65	TRANSISTOR	DTA144ES	
Q511	8-729-900-89	TRANSISTOR	DTC144ES	

< RESISTOR >

Ref. No.	Part No.	Description			
R101	1-249-401-11	CARBON	47	5%	1/4W
R108	1-249-406-11	CARBON	120	5%	1/4W
R109	1-249-405-11	CARBON	100	5%	1/4W
R110	1-249-403-11	CARBON	68	5%	1/4W
R111	1-247-804-11	CARBON	75	5%	1/4W
R117	1-249-417-11	CARBON	1K	5%	1/4W
R204	1-249-436-11	CARBON	39K	5%	1/4W
R205	1-249-437-11	CARBON	47K	5%	1/4W
R207	1-249-429-11	CARBON	10K	5%	1/4W
R208	1-249-429-11	CARBON	10K	5%	1/4W
R211	1-249-436-11	CARBON	39K	5%	1/4W
R212	1-249-437-11	CARBON	47K	5%	1/4W
R213	1-249-436-11	CARBON	39K	5%	1/4W
R218	1-249-436-11	CARBON	39K	5%	1/4W
R227	1-249-414-11	CARBON	560	5%	1/4W
R228	1-249-414-11	CARBON	560	5%	1/4W
R231	1-249-414-11	CARBON	560	5%	1/4W
R232	1-249-414-11	CARBON	560	5%	1/4W
R260	1-249-423-11	CARBON	3.3K	5%	1/4W
R262	1-249-424-11	CARBON	3.9K	5%	1/4W
R280	1-249-416-11	CARBON	820	5%	1/4W
R281	1-249-426-11	CARBON	5.6K	5%	1/4W
R301	1-249-429-11	CARBON	10K	5%	1/4W
R302	1-249-433-11	CARBON	22K	5%	1/4W
R303	1-249-429-11	CARBON	10K	5%	1/4W
R304	1-249-412-11	CARBON	390	5%	1/4W
R305	1-249-422-11	CARBON	2.7K	5%	1/4W
R306	1-249-428-11	CARBON	8.2K	5%	1/4W
R307	1-249-415-11	CARBON	680	5%	1/4W
R308	1-249-393-11	CARBON	10	5%	1/4W
R309	1-249-430-11	CARBON	12K	5%	1/4W
R310	1-249-437-11	CARBON	47K	5%	1/4W
R311	1-249-412-11	CARBON	390	5%	1/4W
R312	1-247-885-00	CARBON	180K	5%	1/4W
R313	1-249-411-11	CARBON	330	5%	1/4W
R314	1-247-854-11	CARBON	9.1K	5%	1/4W
R315	1-249-434-11	CARBON	27K	5%	1/4W
R316	1-249-434-11	CARBON	27K	5%	1/4W
R317	1-247-903-00	CARBON	1M	5%	1/4W
R318	1-249-432-11	CARBON	18K	5%	1/4W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

Ref. No.	Part No.	Description	Remark
R319	1-249-427-11	CARBON 6.8K 5% 1/4W	
R321	1-249-416-11	CARBON 820 5% 1/4W	
R329	1-249-429-11	CARBON 10K 5% 1/4W	
R330	1-249-429-11	CARBON 10K 5% 1/4W	(SLV-595HF)
R330	1-249-433-11	CARBON 22K 5% 1/4W	(SLV-696HF)
R331	1-249-429-11	CARBON 10K 5% 1/4W	(SLV-696HF)
R332	1-249-433-11	CARBON 22K 5% 1/4W	(SLV-696HF)
⚠ R333	1-249-387-11	CARBON 3.3 5% 1/4W	
R336	1-249-421-11	CARBON 2.2K 5% 1/4W	
R337	1-249-421-11	CARBON 2.2K 5% 1/4W	
R338	1-249-421-11	CARBON 2.2K 5% 1/4W	
R340	1-249-417-11	CARBON 1K 5% 1/4W	
R341	1-249-417-11	CARBON 1K 5% 1/4W	
R350	1-249-416-11	CARBON 820 5% 1/4W	
R351	1-249-417-11	CARBON 1K 5% 1/4W	
R362	1-247-903-00	CARBON 1M 5% 1/4W	
R363	1-247-883-00	CARBON 150K 5% 1/4W	
R364	1-249-433-11	CARBON 22K 5% 1/4W	
R365	1-249-426-11	CARBON 5.6K 5% 1/4W	
R366	1-249-433-11	CARBON 22K 5% 1/4W	
R367	1-249-433-11	CARBON 22K 5% 1/4W	
R376	1-247-883-00	CARBON 150K 5% 1/4W	
R377	1-249-433-11	CARBON 22K 5% 1/4W	
R378	1-249-426-11	CARBON 5.6K 5% 1/4W	
R379	1-247-903-00	CARBON 1M 5% 1/4W	
R380	1-249-429-11	CARBON 10K 5% 1/4W	
R381	1-249-429-11	CARBON 10K 5% 1/4W	
R398	1-249-441-11	CARBON 100K 5% 1/4W	
R399	1-249-441-11	CARBON 100K 5% 1/4W	
R401	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R402	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R427	1-249-429-11	CARBON 10K 5% 1/4W	
R428	1-215-421-00	METAL FILM 1K 1% 1/4W	
R430	1-215-429-00	METAL FILM 2.2K 1% 1/4W	
R432	1-249-405-11	CARBON 100 5% 1/4W	
R434	1-249-441-11	CARBON 100K 5% 1/4W	
R435	1-247-901-11	CARBON 820K 5% 1/4W	
R436	1-249-411-11	CARBON 330 5% 1/4W	
R438	1-249-435-11	CARBON 33K 5% 1/4W	
R439	1-249-439-11	CARBON 68K 5% 1/4W	
R440	1-249-425-11	CARBON 4.7K 5% 1/4W	
R441	1-249-441-11	CARBON 100K 5% 1/4W	
R499	1-249-429-11	CARBON 10K 5% 1/4W	
R501	1-215-463-00	METAL 56K 1% 1/6W	
R503	1-215-431-00	METAL 2.7K 1% 1/6W	
R504	1-249-430-11	CARBON 12K 5% 1/4W	
R506	1-249-417-11	CARBON 1K 5% 1/4W	
R510	1-249-425-11	CARBON 4.7K 5% 1/4W	
R512	1-249-429-11	CARBON 10K 5% 1/4W	
R513	1-249-429-11	CARBON 10K 5% 1/4W	
R514	1-249-429-11	CARBON 10K 5% 1/4W	
R517	1-249-437-11	CARBON 47K 5% 1/4W	
R518	1-249-437-11	CARBON 47K 5% 1/4W	
R519	1-249-421-11	CARBON 2.2K 5% 1/4W	
R525	1-249-422-11	CARBON 2.7K 5% 1/4W	
R527	1-249-436-11	CARBON 39K 5% 1/4W	
R528	1-249-431-11	CARBON 15K 5% 1/4W	
R529	1-249-431-11	CARBON 15K 5% 1/4W	
R530	1-249-429-11	CARBON 10K 5% 1/4W	
R540	1-249-421-11	CARBON 2.2K 5% 1/4W	

< RF MODULATOR >

Ref. No.	Part No.	Description	Remark
⚠ RF101	1-466-150-11	MODULATOR, RF (RFU-1025)	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV301	1-238-021-11	RES, ADJ, CARBON 220K	
RV501	1-241-632-11	RES, ADJ, CARBON 47K	
RV502	1-241-632-11	RES, ADJ, CARBON 47K	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T301	1-433-330-11	TRANSFORMER, BIAS OSCILLATION	(SLV-595HF)
T301	1-433-352-11	TRANSFORMER, BIAS OSCILLATION	(SLV-696HF)

< CRYSTAL >

Ref. No.	Part No.	Description	Remark
X501	1-578-774-11	VIBRATOR, CRYSTAL (12MHz)	

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* A-6754-303-A MD-54 BOARD, COMPLETE

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(Ref.No 3,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C001	1-161-494-00	CERAMIC 0.022uF 25V	
C002	1-161-494-00	CERAMIC 0.022uF 25V	
C003	1-126-157-11	ELECT 10uF 20% 16V	
C004	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C006	1-124-589-11	ELECT 47uF 20% 16V	
C008	1-164-159-11	CERAMIC 0.1uF 50V	
C009	1-164-159-11	CERAMIC 0.1uF 50V	
C025	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C026	1-162-294-31	CERAMIC 0.001uF 10% 50V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN003	1-691-643-11	CONNECTOR, BOARD TO BOARD	
CN004	1-563-625-11	CONNECTOR, FLEXIBLE 22P	
CN005	1-506-482-11	CONNECTOR 3P, MALE	
CN006	1-569-333-11	CONNECTOR, BOARD TO BOARD 3P	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D001	8-719-985-00	DIODE GL451VS1	
D005	8-719-109-93	DIODE RD6.2ES-B2	
D006	8-719-109-93	DIODE RD6.2ES-B2	
D007	8-719-109-93	DIODE RD6.2ES-B2	
D008	8-719-109-93	DIODE RD6.2ES-B2	
		< IC >	
IC002	8-759-912-77	IC LM324N	
		< COIL >	
L001	1-410-316-11	INDUCTOR 1uH	
L002	1-410-316-11	INDUCTOR 1uH	
		< PHOTO INTERRUPTER >	
PH001	8-759-144-33	IC PS6002	
PH002	8-759-144-33	IC PS6002	
		< TRANSISTOR >	
Q002	8-729-926-31	TRANSISTOR PT483F1S	
Q003	8-729-926-31	TRANSISTOR PT483F1S	
		< RESISTOR >	
R001	1-249-423-11	CARBON 3.3K 5% 1/4W	
R002	1-249-423-11	CARBON 3.3K 5% 1/4W	
R003	1-249-426-11	CARBON 5.6K 5% 1/4W	
R004	1-249-426-11	CARBON 5.6K 5% 1/4W	
R005	1-249-417-11	CARBON 1K 5% 1/4W	
R006	1-249-441-11	CARBON 100K 5% 1/4W	
R007	1-249-441-11	CARBON 100K 5% 1/4W	
R008	1-249-425-11	CARBON 4.7K 5% 1/4W	
R009	1-249-408-11	CARBON 180 5% 1/4W	
R010	1-249-422-11	CARBON 2.7K 5% 1/4W	
R011	1-249-437-11	CARBON 47K 5% 1/4W	
R012	1-249-421-11	CARBON 2.2K 5% 1/4W	
R015	1-249-437-11	CARBON 47K 5% 1/4W	
R016	1-249-421-11	CARBON 2.2K 5% 1/4W	
R017	1-249-429-11	CARBON 10K 5% 1/4W	
R018	1-249-429-11	CARBON 10K 5% 1/4W	
R019	1-249-429-11	CARBON 10K 5% 1/4W	
R020	1-249-429-11	CARBON 10K 5% 1/4W	
R023	1-249-414-11	CARBON 560 5% 1/4W	
		< SWITCH >	
S002	1-570-953-11	SWITCH, PUSH (1 KEY) (REC PROOF)	
S004	1-570-953-11	SWITCH, PUSH (1 KEY) (C-DOWN)	

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Ref. No.	Part No.	Description	Remark
*	A-6721-440-A	MF-140 BOARD, COMPLETE (SLV-595HF) **********************	
*	A-6721-442-A	MF-140 BOARD, COMPLETE (SLV-696HF) **********************	
			(Ref.No 1,000 Series)
*	3-944-574-01	HOLDER, FL	
		< BUZZER >	
BZ901	1-529-080-11	BUZZER, PIEZOELECTRIC	
		< CAPACITOR >	
C903	1-164-056-11	CERAMIC 27PF 5% 50V	
C904	1-125-705-11	CAP, DOUBLE LAYERS 0.22F	
C905	1-164-159-11	CERAMIC 0.1uF 50V	
C906	1-126-177-11	ELECT 100uF 20% 10V	
C912	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C913	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C914	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C930	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
		< CERAMIC VIBRATOR >	
CF901	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	
		< CONNECTOR >	
CN901	1-691-277-11	CONNECTOR, BOARD TO BOARD 13P	
CN902	1-580-846-11	CONNECTOR, BOARD TO BOARD 15P	
CN903	1-562-631-11	SOCKET, CONNECTOR	
CN904	1-691-247-11	CONNECTOR, BOARD TO BOARD 9P	
CN905	1-568-670-11	CONNECTOR, BOARD TO BOARD 9P	
CN906	1-506-486-11	PIN, CONNECTOR 7P	
CN907	1-568-670-11	CONNECTOR, BOARD TO BOARD 9P	
		< TRIMMER >	
CT901	1-141-227-00	CAP, TRIMMER 20PF	
		< DIODE >	
D901	8-719-911-19	DIODE 1SS119	
D902	8-719-911-19	DIODE 1SS119	
D903	8-719-110-08	DIODE RD8.2ES-B2	
D907	8-719-108-12	DIODE RD9.1E-W	
D908	8-719-108-12	DIODE RD9.1E-W	
D909	8-719-108-12	DIODE RD9.1E-W	
D914	8-719-109-93	DIODE RD6.2ES-B2	
D915	8-719-109-93	DIODE RD6.2ES-B2	
		< FILTER >	
FL901	1-519-706-11	INDICATOR TUBE, FLUORESCENT	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC901	8-752-835-36	IC CXP50124-017Q	
IC902	8-759-510-43	IC PST572C	
IC903	8-759-515-58	IC PST572H	
IC905	8-759-996-59	IC CAT35C102P	
		< JUMPER RESISTOR >	
JR901	1-216-296-00	METAL CHIP 0 5% 1/8W	
		< COIL >	
L901	1-410-521-11	INDUCTOR 100uH	
L902	1-410-314-11	INDUCTOR 0.47uH	
L903	1-410-314-11	INDUCTOR 0.47uH	
		< RESISTOR >	
R902	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R903	1-249-425-11	CARBON 4.7K 5% 1/4W	
R904	1-249-425-11	CARBON 4.7K 5% 1/4W	
R905	1-249-425-11	CARBON 4.7K 5% 1/4W	
R906	1-249-425-11	CARBON 4.7K 5% 1/4W	
R914	1-249-427-11	CARBON 6.8K 5% 1/4W	
R918	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R919	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R920	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R921	1-249-425-11	CARBON 4.7K 5% 1/4W	
R922	1-249-425-11	CARBON 4.7K 5% 1/4W	
R923	1-249-425-11	CARBON 4.7K 5% 1/4W	
R924	1-249-417-11	CARBON 1K 5% 1/4W	
R927	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R929	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R931	1-249-437-11	CARBON 47K 5% 1/4W	
R953	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R957	1-249-437-11	CARBON 47K 5% 1/4W	
R958	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R959	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R960	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R961	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R963	1-249-425-11	CARBON 4.7K 5% 1/4W	
R964	1-249-418-11	CARBON 1.2K 5% 1/4W	
R965	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R966	1-249-437-11	CARBON 47K 5% 1/4W	(SLV-696HF)
R967	1-249-437-11	CARBON 47K 5% 1/4W	(Canadian)
R968	1-249-437-11	CARBON 47K 5% 1/4W	(SLV-595HF)
R969	1-249-437-11	CARBON 47K 5% 1/4W	(US)
R970	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R971	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R972	1-249-437-11	CARBON 47K 5% 1/4W	
R973	1-249-425-11	CARBON 4.7K 5% 1/4W	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S902	1-572-946-11	SWITCH, TACTIL(EJECT)	
S903	1-572-946-11	SWITCH, TACTIL(HI-SPEED REWIND)	
S904	1-572-946-11	SWITCH, TACTIL(PAUSE)	
		< CRYSTAL >	
X902	1-567-098-00	OSCILLATOR, CRYSTAL(32.768kHz)	

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*	A-6755-321-A	MF-141 BOARD, COMPLETE (SLV-595HF/SLV-696HF;Canadian)	
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*	A-6755-324-A	MF-141 BOARD, COMPLETE (SLV-696HF;US)	
		**********************	
		(Ref.No 3,000 Series)	

Ref. No.	Part No.	Description	Remark
		< JACK >	
CJ601	1-580-845-11	JACK, PIN 3P(LINE IN2)	
		< CONNECTOR >	
CN601	1-568-664-11	CONNECTOR, BOARD TO BOARD 9P	
CN602	1-568-664-11	CONNECTOR, BOARD TO BOARD 9P	
		< DIODE >	
D601	8-719-992-30	DIODE SLR-305MC3F	
D602	8-719-992-30	DIODE SLR-305MC3F	
D604	8-719-911-19	DIODE 1SS119	
		< COIL >	
L601	1-410-336-11	INDUCTOR 220uH	
		< RESISTOR >	
R604	1-249-423-11	CARBON 3.3K 5% 1/4W	
R605	1-249-403-11	CARBON 68 5% 1/4W	
R608	1-249-427-11	CARBON 6.8K 5% 1/4W	
R611	1-249-417-11	CARBON 1K 5% 1/4W	
R612	1-249-417-11	CARBON 1K 5% 1/4W	
R614	1-249-401-11	CARBON 47 5% 1/4W	
R616	1-249-423-11	CARBON 3.3K 5% 1/4W	
R617	1-249-425-11	CARBON 4.7K 5% 1/4W	
R618	1-249-425-11	CARBON 4.7K 5% 1/4W	
		< VARIABLE RESISTOR >	
RV601	1-230-819-11	RES, VAR, CARBON 2K(SHARPNESS)	
		< SWITCH >	
S601	1-571-977-11	SWITCH, TACTIL(POWER)	

Ref. No.	Part No.	Description	Remark
S603	1-572-907-11	SWITCH, SLIDE(COMMAND MODE)	
S605	1-572-908-11	SWITCH, SLIDE(EDIT)	
S606	1-571-977-11	SWITCH, TACTIL(CL)	

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* A-6755-406-A MF-143 BOARD, COMPLETE (SLV-696HF;US)

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* A-6755-407-A MF-143 BOARD, COMPLETE
(SLV-595HF/SLV-696HF;Canadian)

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(Ref.No 1,000 Series)

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN701	1-580-850-11	CONNECTOR (DMS) 8P	
CN702	1-562-088-00	SOCKET, CONNECTOR 9P	

< IC >

Ref. No.	Part No.	Description	Remark
IC701	1-466-131-21	IC GP1U52X	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R701	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R702	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R706	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R707	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R708	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R710	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

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* A-6727-393-A RP-127 BOARD, COMPLETE (SLV-595HF)

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* A-6727-394-A RP-127 BOARD, COMPLETE (SLV-696HF)

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(Ref.No 1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C260	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C261	1-124-584-00	ELECT 100uF 20% 10V	
C262	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C263	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C264	1-124-257-00	ELECT 2.2uF 20% 50V	
C265	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C267	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C270	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C273	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C274	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C275	1-126-160-11	ELECT 1uF 20% 50V	
C276	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C277	1-137-075-11	FILM 0.068uF 5% 100V	(SLV-696HF)
C279	1-163-986-00	CERAMIC CHIP 0.027uF 10% 25V	(SLV-696HF)
C280	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	(SLV-696HF)
C281	1-124-589-11	ELECT 47uF 20% 16V	(SLV-696HF)
C286	1-164-232-11	CERAMIC CHIP 0.01uF 50V	(SLV-696HF)
C801	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C802	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C803	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C804	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C805	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C806	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C807	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C808	1-124-584-00	ELECT 100uF 20% 10V	
C809	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C810	1-124-584-00	ELECT 100uF 20% 10V	
C811	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C812	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C813	1-164-336-11	CERAMIC CHIP 0.33uF 25V	
C814	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C815	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C816	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C817	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C818	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	
C819	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C820	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C822	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C823	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C824	1-124-126-00	ELECT 47uF 20% 10V	
C826	1-124-589-11	ELECT 47uF 20% 16V	
C827	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C828	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C829	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C830	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C831	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C835	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C836	1-163-090-00	CERAMIC CHIP 18PF 50V	(SLV-696HF)
C839	1-163-090-00	CERAMIC CHIP 18PF 50V	(SLV-696HF)
C890	1-164-232-11	CERAMIC CHIP 0.01uF 50V	(SLV-696HF)
C893	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	(SLV-696HF)
C894	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	(SLV-696HF)
C895	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	(SLV-696HF)
C896	1-163-038-00	CERAMIC CHIP 0.1uF 25V	(SLV-696HF)
C897	1-126-157-11	ELECT 10uF 20% 16V	(SLV-696HF)

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN204	1-569-336-11	CONNECTOR, BOARD TO BOARD 7P	
CN260	1-506-482-11	CONNECTOR 3P, MALE	(SLV-696HF)
CN801	1-563-590-11	CONNECTOR, FLEXIBLE 13P	
CN802	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
* CN803	1-564-031-00	PIN, CONNECTOR 6P	

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D801	8-719-911-19	DIODE 1SS119	
D802	8-719-911-19	DIODE 1SS119	
D803	8-719-911-19	DIODE 1SS119	
D804	8-719-911-19	DIODE 1SS119	
D805	8-719-911-19	DIODE 1SS119	
D806	8-719-400-18	DIODE MA152WK	
D807	8-719-911-19	DIODE 1SS119	
		< IC >	
IC260	8-759-055-49	IC AN3327K	
IC801	8-759-046-75	IC HA118162NT	
		< JUMPER RESISTOR >	
JR401	1-216-296-00	METAL CHIP 0 5% 1/8W	(SLV-696HF)
JR402	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR403	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR404	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR405	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR406	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR833	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L260	1-410-521-11	INDUCTOR 100uH	
L265	1-408-426-00	INDUCTOR 270uH	(SLV-696HF)
L801	1-410-525-11	INDUCTOR 220uH	
L802	1-410-525-11	INDUCTOR 220uH	
L803	1-410-521-11	INDUCTOR 100uH	
L804	1-410-521-11	INDUCTOR 100uH	
L806	1-410-516-11	INDUCTOR 39uH	
L807	1-410-518-21	INDUCTOR 56uH	
L809	1-410-512-11	INDUCTOR 18uH	
L810	1-410-524-41	INDUCTOR 180uH	
L811	1-410-521-11	INDUCTOR 100uH	
L812	1-410-521-11	INDUCTOR 100uH	
L813	1-410-510-11	INDUCTOR 12uH	(SLV-696HF)
L814	1-410-510-11	INDUCTOR 12uH	(SLV-696HF)
L890	1-410-507-11	INDUCTOR 6.8uH	(SLV-696HF)
L891	1-410-521-11	INDUCTOR 100uH	(SLV-696HF)
		< TRANSISTOR >	
⚠Q260	8-729-103-72	TRANSISTOR 2SD1005-BV	(SLV-696HF)
Q801	8-729-422-28	TRANSISTOR 2SD601A-R	
Q802	8-729-422-28	TRANSISTOR 2SD601A-R	
Q803	8-729-424-18	TRANSISTOR UN2113	
Q804	8-729-422-28	TRANSISTOR 2SD601A-R	
Q805	8-729-422-37	TRANSISTOR 2SB709A-R	
Q806	8-729-422-37	TRANSISTOR 2SB709A-R	
Q807	8-729-422-28	TRANSISTOR 2SD601A-R	
Q808	8-729-421-19	TRANSISTOR UN2213	
Q809	8-729-422-28	TRANSISTOR 2SD601A-R	
Q810	8-729-421-19	TRANSISTOR UN2213	
Q811	8-729-301-98	TRANSISTOR 2SB1000A-L	
Q814	8-729-421-19	TRANSISTOR UN2213	
Q890	8-729-216-22	TRANSISTOR 2SA1162-G	(SLV-696HF)
Q891	8-729-216-22	TRANSISTOR 2SA1162-G	(SLV-696HF)
Q892	8-729-421-19	TRANSISTOR UN2213	(SLV-696HF)
		< RESISTOR >	
R262	1-216-184-00	METAL GLAZE 270 5% 1/8W	
R263	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R265	1-216-033-00	METAL CHIP 220 5% 1/10W	
R266	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R267	1-216-035-00	METAL CHIP 270 5% 1/10W	
R271	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R272	1-216-073-00	METAL CHIP 10K 5% 1/10W	(SLV-696HF)
⚠R273	1-249-387-11	CARBON 3.3 5% 1/4W	(SLV-696HF)
R801	1-216-025-00	METAL CHIP 100 5% 1/10W	
R802	1-216-043-00	METAL CHIP 560 5% 1/10W	
R803	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R804	1-216-023-00	METAL CHIP 82 5% 1/10W	
R805	1-216-613-11	METAL CHIP 27 0.5% 1/10W	
R806	1-216-025-00	METAL CHIP 100 5% 1/10W	
R807	1-216-025-00	METAL CHIP 100 5% 1/10W	
R808	1-216-613-11	METAL CHIP 27 0.5% 1/10W	
R809	1-216-023-00	METAL CHIP 82 5% 1/10W	
R810	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R811	1-216-043-00	METAL CHIP 560 5% 1/10W	
R812	1-216-025-00	METAL CHIP 100 5% 1/10W	
R813	1-216-047-00	METAL CHIP 820 5% 1/10W	
R815	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R816	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R817	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R818	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R819	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R820	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R821	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R822	1-216-039-00	METAL CHIP 390 5% 1/10W	
R823	1-216-047-00	METAL CHIP 820 5% 1/10W	
R824	1-216-039-00	METAL CHIP 390 5% 1/10W	
R825	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R826	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R827	1-216-045-00	METAL CHIP 680 5% 1/10W	
R828	1-216-043-00	METAL CHIP 560 5% 1/10W	
R830	1-216-043-00	METAL CHIP 560 5% 1/10W	
R831	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

Ref.No.	Part No.	Description	Remark
R832	1-216-047-00	METAL CHIP 820 5% 1/10W	
R833	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R834	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R835	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R836	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R838	1-216-043-00	METAL CHIP 560 5% 1/10W	
R839	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R891	1-216-011-00	METAL CHIP 27 5% 1/10W	(SLV-696HF)
R894	1-216-041-00	METAL CHIP 470 5% 1/10W	(SLV-696HF)
R895	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	(SLV-696HF)
R896	1-216-095-00	METAL CHIP 82K 5% 1/10W	(SLV-696HF)
R897	1-216-089-00	METAL CHIP 47K 5% 1/10W	(SLV-696HF)
R898	1-216-748-11	METAL CHIP 39K 1% 1/10W	(SLV-696HF)

< TRANSFORMER >

Ref.No.	Part No.	Description	Remark
T260	1-406-349-11	TRANSFORMER, OSCILLATION	(SLV-696HF)

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1-413-686-11 SR-370 BOARD (POWER BLOCK)
************ (Ref.No 4,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description	Remark
⚠C101	9-900-521-01	FILM 0,1uF 125V	
⚠C102	9-900-521-01	FILM 0,1uF 125V	
⚠C103	9-900-522-01	CERAMIC 2200PF 125V	
⚠C104	9-900-522-01	CERAMIC 2200PF 125V	
⚠C105	9-900-522-01	CERAMIC 2200PF 125V	
⚠C106	9-902-054-01	ELECT 470uF 200V	
C107	1-124-927-11	ELECT 4,7uF 20% 50V	
C108	9-902-055-01	CERAMIC 100PF 1KV	
C109	9-900-525-01	FILM 0,047uF 400V	
C110	1-130-491-00	MYLAR 0,047uF 5% 50V	
C111	1-130-491-00	MYLAR 0,047uF 5% 50V	
C201	1-124-443-00	ELECT 100uF 20% 10V	
C202	1-124-122-11	ELECT 100uF 20% 50V	
C203	9-900-540-01	ELECT 2200uF 16V	
C204	1-126-101-11	ELECT 100uF 20% 16V	
C205	1-126-101-11	ELECT 100uF 20% 16V	
C206	9-900-541-01	ELECT 2200uF 10V	
C207	9-902-067-01	ELECT 1uF 50V	
C208	9-900-542-01	ELECT 470uF 10V	
C209	1-130-483-00	MYLAR 0,01uF 5% 50V	
C210	1-124-443-00	ELECT 100uF 20% 10V	
C211	1-124-122-11	ELECT 100uF 20% 50V	
C212	1-124-471-00	ELECT 1000uF 20% 6,3V	
C213	1-130-483-00	MYLAR 0,01uF 5% 50V	
C214	1-130-483-00	MYLAR 0,01uF 5% 50V	
C215	9-902-197-01	CERAMIC 1000pF 1KV	
C216	1-124-443-00	ELECT 100uF 20% 10V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN101	9-902-075-01	CONNECTOR 13P	
CN102	9-902-076-01	CONNECTOR 7P	
⚠CNJ101	9-902-079-01	INLET AC(AC IN)	

< DIODE >

Ref.No.	Part No.	Description	Remark
⚠D101	8-719-510-06	DIODE S1WB60	
⚠D102	9-900-512-01	DIODE AG01A	
⚠D103	8-719-200-82	DIODE 11ES2	
D104	8-719-911-19	DIODE 1SS119	
D105	8-719-911-19	DIODE 1SS119	
D106	8-719-911-19	DIODE 1SS119	
D107	8-719-911-19	DIODE 1SS119	
D108	8-719-911-19	DIODE 1SS119	
D109	8-719-911-19	DIODE 1SS119	
⚠D110	9-902-050-01	DIODE ERA15-06	
⚠D201	9-900-534-01	DIODE ERA18-02	
⚠D202	8-719-114-87	DIODE RD18JSB2	
⚠D204	8-719-230-02	DIODE 30DF2	
⚠D205	8-719-981-00	DIODE ERC81-004	
⚠D206	9-900-534-01	DIODE ERA18-02	
⚠D207	8-719-981-01	DIODE ERA81-004	

< FUSE >

Ref.No.	Part No.	Description	Remark
⚠F101	1-532-743-11	FUSE, GLASS TUBE 2A 125V	

< BEAD CORE >

Ref.No.	Part No.	Description	Remark
FB101	9-902-053-01	CORE, BEAD	

< IC >

Ref.No.	Part No.	Description	Remark
⚠IC201	9-902-065-01	IC PQ12RF13	
⚠IC202	9-902-066-01	IC PQ12RF11	
IC203	9-900-533-01	IC HA17431	
IC204	9-900-533-01	IC HA17431	

< COIL >

Ref.No.	Part No.	Description	Remark
⚠L101	9-900-520-01	FILTER, LINE ELF18D290A	
L201	9-900-539-01	COIL, CHOKE 10uH	

< PHOTO COUPLER >

Ref.No.	Part No.	Description	Remark
⚠PC101	8-719-902-56	PHOTO COUPLER PC817	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
⚠Q101	8-729-204-94	TRANSISTOR 2SC3559	
⚠Q102	9-900-517-01	TRANSISTOR 2SC3377	
Q201	8-729-903-32	TRANSISTOR 2SA933-Q	
⚠Q202	8-729-140-98	TRANSISTOR 2SD773-34	

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Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
⚠R101	9-902-056-01	SOLID	6.8M		1/2W
R102	1-249-441-11	CARBON	100K	5%	1/4W
R103	1-249-441-11	CARBON	100K	5%	1/4W
R104	1-249-429-11	CARBON	10K	5%	1/4W
⚠R106	9-902-057-01	METAL	47K		3W
⚠R107	9-902-058-01	METAL	100		1W
R108	1-249-413-11	ADJ	470	5%	1/4W
R109		ADJ			
R110	1-249-497-11	CARBON	22	5%	1/4W
R201	1-249-417-11	CARBON	1K	5%	1/4W
⚠R202	1-247-727-11	CARBON	10	5%	1/2W F
R203	1-249-417-11	CARBON	1K	5%	1/4W
R204	9-902-069-01	CARBON	47		1/2W
R205	1-215-428-00	CARBON	2K	1%	1/4W
R206	1-215-425-00	CARBON	1.5K	1%	1/4W
R207	9-902-070-01	ADJ	56K		1/4W
⚠R208	9-900-543-01	METAL	0.22		1/2W
R209	9-902-071-01	CARBON	100		1/4W
R210	9-902-071-01	CARBON	100		1/4W
R211	1-249-417-11	CARBON	1K	5%	1/4W
R212	1-215-425-00	METAL	1.5K	1%	1/4W
R213	9-902-072-01	ADJ	100		1/4W
R214	1-215-425-00	METAL	1.5K	1%	1/4W
⚠R215	9-902-073-01	FUSE	10		1/4W F
⚠R216	9-902-074-01	CARBON	0.47		1/4W
R217	1-249-429-11	CARBON	10K	5%	1/4W
		< TYRISTOR >			
⚠SCR201	8-719-107-87	TYRISTOR 03P2M			
		< TRANSFORMER >			
⚠T101	9-902-052-01	TRANSFORMER, SWITCHING ETS28K356V			

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* A-6754-426-A TU-132 BOARD, COMPLETE

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(Ref.No 4,000 Series)

3-710-578-01 COVER, VOLUME, 6 MOLD

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C001	1-124-126-00	ELECT	47uF	20%	10V
C002	1-124-927-11	ELECT	4.7uF	20%	100V
C003	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C004	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C005	1-126-101-11	ELECT	100uF	20%	16V
C007	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C008	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C011	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C012	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C014	1-124-126-00	ELECT	47uF	20%	10V
C016	1-124-126-00	ELECT	47uF	20%	10V
C019	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C020	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C021	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C022	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C023	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C024	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C025	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C026	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C028	1-163-091-00	CERAMIC CHIP	8PF		50V
C029	1-124-443-00	ELECT	100uF	20%	10V
C030	1-124-907-11	ELECT	10uF	20%	50V
C031	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C032	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C033	1-124-126-00	ELECT	47uF	20%	10V
C034	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C035	1-124-250-00	ELECT	0.15uF	20%	50V
C036	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C037	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C038	1-124-903-11	ELECT	1uF	20%	50V
C039	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C040	1-124-126-00	ELECT	47uF	20%	10V
C041	1-124-902-00	ELECT	0.47uF	20%	50V
C043	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C044	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C045	1-124-907-11	ELECT	10uF	20%	50V
C046	1-124-126-00	ELECT	47uF	20%	10V
C070	1-130-484-00	MYLAR	0.012uF	5%	50V
C071	1-130-480-00	MYLAR	0.0056uF	5%	50V
C072	1-124-252-00	ELECT	0.33uF	20%	50V
C073	1-124-907-11	ELECT	10uF	20%	50V
C074	1-124-907-11	ELECT	10uF	20%	50V
C075	1-130-476-00	MYLAR	0.0027uF	5%	50V
C076	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C077	1-124-907-11	ELECT	10uF	20%	50V
C078	1-131-365-00	TANTALUM	10uF	10%	20V
C079	1-124-903-11	ELECT	1uF	20%	50V
C080	1-131-368-00	TANTALUM	3.3uF	10%	16V
C081	1-124-907-11	ELECT	10uF	20%	50V
C082	1-124-907-11	ELECT	10uF	20%	50V
C083	1-163-075-00	CERAMIC CHIP	0.047uF		50V
C084	1-124-927-11	ELECT	4.7uF	20%	100V
C085	1-124-902-00	ELECT	0.47uF	20%	50V
C086	1-124-903-11	ELECT	1uF	20%	50V
C087	1-126-157-11	ELECT	10uF	20%	16V
C088	1-164-232-11	CERAMIC CHIP	0.01uF		50V

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TU-132

Ref. No.	Part No.	Description			Remark
C089	1-126-162-11	ELECT	3.3uF	20%	50V
C090	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C091	1-124-907-11	ELECT	10uF	20%	50V
C092	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C098	1-126-233-11	ELECT	22uF	20%	50V
		< FILTER >			
CF001	1-577-559-11	FILTER, CERAMIC			
CF002	1-409-332-00	CERAMIC TRAP			
CF003	1-527-943-00	FILTER, CERAMIC			
		< CONNECTOR >			
CN001	1-573-826-11	CONNECTOR, BOARD TO BOARD 12P			
CN002	1-573-826-11	CONNECTOR, BOARD TO BOARD 12P			
		< DIODE >			
⚠D001	8-719-929-71	DIODE	HZS33NB1		
D005	8-719-104-34	DIODE	1S2836		
D006	8-719-104-34	DIODE	1S2836		
⚠D007	8-719-800-76	DIODE	1SS226		
		< IC >			
IC001	8-759-630-93	IC	M51362SP		
IC002	8-752-035-71	IC	CXA1124A		
IC003	8-759-981-64	IC	LM2903DQ		
		< JUMPER RESISTOR >			
JP002	1-216-296-00	METAL CHIP	0	5%	1/8W
JP004	1-216-295-00	METAL CHIP	0	5%	1/10W
JP006	1-216-296-00	METAL CHIP	0	5%	1/8W
JP007	1-216-296-00	METAL CHIP	0	5%	1/8W
JP008	1-216-295-00	METAL CHIP	0	5%	1/10W
JP009	1-216-296-00	METAL CHIP	0	5%	1/8W
JP010	1-216-296-00	METAL CHIP	0	5%	1/8W
JP011	1-216-296-00	METAL CHIP	0	5%	1/8W
JP012	1-216-296-00	METAL CHIP	0	5%	1/8W
JP013	1-216-295-00	METAL CHIP	0	5%	1/10W
JP014	1-216-296-00	METAL CHIP	0	5%	1/8W
JP015	1-216-296-00	METAL CHIP	0	5%	1/8W
JP016	1-216-295-00	METAL CHIP	0	5%	1/10W
JP017	1-216-295-00	METAL CHIP	0	5%	1/10W
JP018	1-216-296-00	METAL CHIP	0	5%	1/8W
JP019	1-216-296-00	METAL CHIP	0	5%	1/8W
JP020	1-216-296-00	METAL CHIP	0	5%	1/8W
JP021	1-216-295-00	METAL CHIP	0	5%	1/10W
JP022	1-216-295-00	METAL CHIP	0	5%	1/10W
JP023	1-216-296-00	METAL CHIP	0	5%	1/8W
JP024	1-216-295-00	METAL CHIP	0	5%	1/10W
JP025	1-216-296-00	METAL CHIP	0	5%	1/8W
JP026	1-216-296-00	METAL CHIP	0	5%	1/8W
JP027	1-216-295-00	METAL CHIP	0	5%	1/10W
JP028	1-216-296-00	METAL CHIP	0	5%	1/8W
JP029	1-216-296-00	METAL CHIP	0	5%	1/8W
JP030	1-216-296-00	METAL CHIP	0	5%	1/8W
JP031	1-216-295-00	METAL CHIP	0	5%	1/10W
		< COIL >			
L001	1-408-409-00	INDUCTOR	10uH		
L002	1-410-977-11	INDUCTOR	100uH		
L003	1-408-413-00	INDUCTOR	22uH		
L004	1-408-409-00	INDUCTOR	10uH		
L005	1-410-971-11	INDUCTOR	10uH		
L006	1-410-787-31	INDUCTOR	0.33uH		
L007	1-410-316-11	INDUCTOR	1uH		
L008	1-410-972-11	INDUCTOR	15uH		
L010	1-410-971-11	INDUCTOR	10uH		
L011	1-410-971-11	INDUCTOR	10uH		
L098	1-412-292-11	INDUCTOR	1.2uH		
		< TRANSISTOR >			
⚠Q001	8-729-173-38	TRANSISTOR	2SA733-K		
Q002	8-729-421-19	TRANSISTOR	UN2213		
Q005	8-729-822-90	TRANSISTOR	2SC3779C		
Q006	8-729-822-90	TRANSISTOR	2SC3779C		
Q007	8-729-422-27	TRANSISTOR	2SD601A-QRS		
Q008	8-729-422-27	TRANSISTOR	2SD601A-QRS		
Q009	8-729-422-27	TRANSISTOR	2SD601A-QRS		
Q070	8-729-422-27	TRANSISTOR	2SD601A-QRS		
Q071	8-729-421-19	TRANSISTOR	UN2213		
		< RESISTOR >			
R001	1-216-085-00	METAL CHIP	33K	5%	1/10W
R002	1-216-089-00	METAL CHIP	47K	5%	1/10W
R003	1-216-037-00	METAL CHIP	330	5%	1/10W
R004	1-216-035-00	METAL CHIP	270	5%	1/10W
R005	1-216-025-00	METAL CHIP	100	5%	1/10W
R006	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R008	1-216-049-00	METAL CHIP	1K	5%	1/10W
R009	1-216-049-00	METAL CHIP	1K	5%	1/10W
R010	1-216-033-00	METAL CHIP	220	5%	1/10W
R012	1-216-081-00	METAL CHIP	22K	5%	1/10W
R013	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R014	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R015	1-216-081-00	METAL CHIP	22K	5%	1/10W
R016	1-216-081-00	METAL CHIP	22K	5%	1/10W
R018	1-216-083-00	METAL CHIP	27K	5%	1/10W
R019	1-216-089-00	METAL CHIP	47K	5%	1/10W

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Ref. No.	Part No.	Description				Remark
R020	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R023	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R025	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R029	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R030	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R031	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R032	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R033	1-216-017-00	METAL CHIP	47	5%	1/10W	
R034	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R035	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R036	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R038	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R039	1-216-043-00	METAL CHIP	560	5%	1/10W	
R040	1-216-025-00	METAL CHIP	100	5%	1/10W	
R041	1-216-037-00	METAL CHIP	330	5%	1/10W	
R042	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R043	1-216-037-00	METAL CHIP	330	5%	1/10W	
R044	1-216-037-00	METAL CHIP	330	5%	1/10W	
R046	1-216-119-00	METAL CHIP	820K	5%	1/10W	
R047	1-216-037-00	METAL CHIP	330	5%	1/10W	
R048	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R049	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R050	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R051	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R053	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R054	1-216-029-00	METAL CHIP	150	5%	1/10W	
R055	1-216-039-00	METAL CHIP	390	5%	1/10W	
R056	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R057	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R058	1-216-037-00	METAL CHIP	330	5%	1/10W	
R059	1-216-037-00	METAL CHIP	330	5%	1/10W	
R060	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R061	1-216-047-00	METAL CHIP	820	5%	1/10W	
R062	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R063	1-216-021-00	METAL CHIP	68	5%	1/10W	
R064	1-216-025-00	METAL CHIP	100	5%	1/10W	
R065	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R070	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R071	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R072	1-216-690-11	METAL CHIP	43K	0.5%	1/10W	
R073	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R074	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R075	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R076	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R077	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R078	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R079	1-216-691-11	METAL CHIP	47K	0.5%	1/10W	
R080	1-216-691-11	METAL CHIP	47K	0.5%	1/10W	
R081	1-216-089-00	METAL CHIP	47K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R082	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R083	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R084	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R085	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R086	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R087	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R089	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R098	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R099	1-216-079-00	METAL CHIP	18K	5%	1/10W	

< VARIABLE RESISTOR >

RV001	1-241-630-11	RES, ADJ, CARBON 10K
RV002	1-241-079-11	RES, ADJ, CARBON 4.7K
RV070	1-228-993-00	RES, ADJ, METAL 4.7K
RV071	1-228-995-00	RES, ADJ, METAL 22K
RV072	1-228-996-00	RES, ADJ, METAL 47K
RV073	1-241-630-11	RES, ADJ, CARBON 10K

< SWITCH >

SWF001	1-404-971-11	FILTER, SURFACE WAVE

< COIL >

T001	1-404-749-11	COIL
T002	1-404-802-11	COIL
T003	1-404-752-11	COIL
T004	1-404-744-11	COIL, IF

< TUNER >

TU001	1-465-239-21	TUNER, ET

****

* A-6754-388-A YC-114 BOARD, COMPLETE

****

(Ref.No 1,000 Series)

< CAPACITOR >

C002	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C003	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C004	1-124-126-00	ELECT	47uF	20%	10V
C007	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C008	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C009	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C010	1-124-126-00	ELECT	47uF	20%	10V
C011	1-124-907-11	ELECT	10uF	20%	50V
C012	1-163-092-00	CERAMIC CHIP	9PF	0.25PF	50V
C013	1-124-903-11	ELECT	1uF	20%	50V
C014	1-124-903-11	ELECT	1uF	20%	50V
C016	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C017	1-124-126-00	ELECT	47uF	20%	10V

YC-114

Ref. No.	Part No.	Description			Remark
C018	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C019	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C020	1-124-907-11	ELECT	10uF	20%	50V
C021	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C022	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C023	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C024	1-124-907-11	ELECT	10uF	20%	50V
C025	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C027	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C031	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C032	1-124-903-11	ELECT	1uF	20%	50V
C033	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C034	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C035	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C037	1-124-907-11	ELECT	10uF	20%	50V
C038	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C039	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C040	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C041	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C042	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C043	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C044	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C045	1-163-088-00	CERAMIC CHIP	5PF		50V
C046	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C047	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C048	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C049	1-124-907-11	ELECT	10uF	20%	50V
C050	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C052	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C053	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C055	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C056	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C057	1-163-114-00	CERAMIC CHIP	75PF	5%	50V
C058	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C059	1-124-903-11	ELECT	1uF	20%	50V
C061	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C062	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C066	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C069	1-124-902-00	ELECT	0.47uF	20%	50V
C070	1-124-927-11	ELECT	4.7uF	20%	100V
C071	1-124-126-00	ELECT	47uF	20%	10V
C072	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C073	1-124-903-11	ELECT	1uF	20%	50V
C074	1-163-090-00	CERAMIC CHIP	7PF		50V
C075	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C076	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C080	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C081	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C085	1-162-637-11	CERAMIC CHIP	0.47uF		16V

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN001	1-573-826-11	CONNECTOR, BOARD TO BOARD 12P			
CN002	1-573-828-11	CONNECTOR, BOARD TO BOARD 14P			
		< DIODE >			
D001	8-719-911-19	DIODE	1SS119		
D004	8-719-911-19	DIODE	1SS119		
D005	8-719-911-19	DIODE	1SS119		
D007	8-719-911-19	DIODE	1SS119		
D009	8-719-911-19	DIODE	1SS119		
D010	8-719-911-19	DIODE	1SS119		
		< DELAY LINE >			
DL001	1-415-668-31	DELAY LINE, ULTRASONIC			
		< IC >			
IC001	8-759-046-76	IC	LA7396		
IC002	8-759-821-50	IC	LC8991		
		< JUMPER RESISTOR >			
JR001	1-216-296-00	METAL CHIP	0	5%	1/8W
JR501	1-216-296-00	METAL CHIP	0	5%	1/8W
JR502	1-216-296-00	METAL CHIP	0	5%	1/8W
JR503	1-216-295-00	METAL CHIP	0	5%	1/10W
JR504	1-216-295-00	METAL CHIP	0	5%	1/10W
JR505	1-216-296-00	METAL CHIP	0	5%	1/8W
JR506	1-216-295-00	METAL CHIP	0	5%	1/10W
JR507	1-216-296-00	METAL CHIP	0	5%	1/8W
JR508	1-216-296-00	METAL CHIP	0	5%	1/8W
JR509	1-216-296-00	METAL CHIP	0	5%	1/8W
JR510	1-216-296-00	METAL CHIP	0	5%	1/8W
JR511	1-216-295-00	METAL CHIP	0	5%	1/10W
JR512	1-216-295-00	METAL CHIP	0	5%	1/10W
JR513	1-216-296-00	METAL CHIP	0	5%	1/8W
JR514	1-216-295-00	METAL CHIP	0	5%	1/10W
JR515	1-216-295-00	METAL CHIP	0	5%	1/10W
JR516	1-216-296-00	METAL CHIP	0	5%	1/8W
JR518	1-216-296-00	METAL CHIP	0	5%	1/8W
JR560	1-216-295-00	METAL CHIP	0	5%	1/10W
JR561	1-216-295-00	METAL CHIP	0	5%	1/10W
JR562	1-216-295-00	METAL CHIP	0	5%	1/10W
		< COIL >			
L002	1-410-524-41	INDUCTOR	180uH		
L003	1-410-521-11	INDUCTOR	100uH		
L004	1-408-421-00	INDUCTOR	100uH		
L005	1-410-501-11	INDUCTOR	2.2uH		

Ref. No.	Part No.	Description				Remark
L006	1-412-316-11	INDUCTOR	120uH			
L007	1-408-427-00	INDUCTOR	330uH			
L008	1-408-416-00	INDUCTOR	39uH			
L009	1-408-429-00	INDUCTOR	470uH			
L010	1-408-421-00	INDUCTOR	100uH			
L011	1-410-977-11	INDUCTOR	100uH			
L013	1-408-418-00	INDUCTOR	56uH			
L020	1-408-412-00	INDUCTOR	18uH			
L021	1-408-416-00	INDUCTOR	39uH			

< TRANSISTOR >

Ref. No.	Part No.	Description		Remark
Q001	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q005	8-729-422-36	TRANSISTOR	2SB709A-Q	
Q006	8-729-422-36	TRANSISTOR	2SB709A-Q	
Q007	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q008	8-729-422-36	TRANSISTOR	2SB709A-Q	
Q010	8-729-421-19	TRANSISTOR	UN2213	
Q011	8-729-424-56	TRANSISTOR	UN211L	
Q014	8-729-424-46	TRANSISTOR	UN211E	
Q015	8-729-421-19	TRANSISTOR	UN2213	
Q016	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q018	8-729-421-19	TRANSISTOR	UN2213	
Q020	8-729-422-36	TRANSISTOR	2SB709A-Q	
Q022	8-729-421-19	TRANSISTOR	UN2213	
Q023	8-729-421-19	TRANSISTOR	UN2213	

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R001	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R004	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R005	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R006	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R007	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R008	1-216-041-00	METAL CHIP	470	5%	1/10W	
R009	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R010	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R013	1-216-039-00	METAL CHIP	390	5%	1/10W	
R014	1-216-043-00	METAL CHIP	560	5%	1/10W	
R015	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R016	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R017	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R018	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R019	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R020	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R021	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R022	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R023	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R025	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R027	1-216-052-00	METAL CHIP	1.3K	5%	1/10W	
R028	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R029	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R030	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R031	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R032	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R033	1-216-045-00	METAL CHIP	680	5%	1/10W	
R034	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R035	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R036	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R037	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R038	1-216-036-00	METAL CHIP	300	5%	1/10W	
R039	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R040	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R041	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R042	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R044	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R046	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R047	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R048	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R054	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R055	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R056	1-216-204-00	METAL GLAZE	1.8K	5%	1/8W	
R057	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R058	1-216-025-00	METAL CHIP	100	5%	1/10W	
R060	1-216-037-00	METAL CHIP	330	5%	1/10W	
R061	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R062	1-216-073-00	METAL CHIP	10K	5%	1/10W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description		Remark
RV001	1-241-630-11	RES, ADJ, CARBON	10K	
RV002	1-241-630-11	RES, ADJ, CARBON	10K	
RV003	1-241-630-11	RES, ADJ, CARBON	10K	
RV004	1-241-630-11	RES, ADJ, CARBON	10K	
RV005	1-241-628-11	RES, ADJ, CARBON	2.2K	

< CRYSTAL >

Ref. No.	Part No.	Description	Remark
X001	1-577-380-11	VIBRATOR, CRYSTAL (3.58MHz)	

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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
1	1-466-627-21	SWITCH BLOCK, CONTROL (SLV-595HF)	
1	1-466-627-31	SWITCH BLOCK, CONTROL (SLV-696HF)	
54	1-572-662-11	SWITCH, ROTARY	
⚠ 62	1-413-686-11	POWER BLOCK (SR-370 BOARD)	
110	1-690-347-11	WIRE, FLAT TYPE (22 CORE)	
113	1-555-110-00	CABLE, PIN	
161	1-506-482-11	CONNECTOR 3P, MALE	
260	1-543-647-11	HEAD, FE	
264	8-848-581-01	DRUM ASSY, ROTARY UPPER (DZR-49-R) (SLV-696HF)	
264	8-848-583-01	DRUM ASSY, ROTARY UPPER (DZR-50-R) (SLV-595HF)	
267	A-6761-129-C	HEAD BLOCK ASSY, ACE	
M901	8-848-580-11	DRUM ASSY (DZH-49A-R) (SLV-696HF)	
M901	8-848-582-11	DRUM ASSY (DZH-50A-R) (SLV-595HF)	
M902	8-835-469-01	MOTOR, DC U-26J (CAPSTAN)	
M903	X-3733-302-1	MOTOR ASSY, CAM	
M904	X-3727-784-1	MOTOR ASSY (LOADING)	
S1	1-692-062-21	SWITCH, ROTARY	

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ACCESSORIES & PACKING MATERIALS
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Ref. No.	Part No.	Description	Remark
⚠	1-590-135-31	CORD, POWER	
	3-753-884-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-753-884-31	MANUAL, INSTRUCTION (FRENCH) (Canadian)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT (US)	
	1-417-139-11	MATCHING TRANSFORMER, ANTENNA	
	1-465-915-11	REMOTE COMMANDER (RMT-V102D) (SLV-595HF)	
	1-465-916-11	REMOTE COMMANDER (RMT-V112A) (SLV-696HF)	
	1-558-076-41	CORD, CONNECTION (RF)	
	1-575-334-11	CORD, CONNECTION (AUDIO/VIDEO 3P-3P)	
*	3-944-619-01	INDIVIDUAL CARTON (SLV-595HF)	
*	3-944-619-11	INDIVIDUAL CARTON (SLV-696HF)	
*	3-944-620-01	CUSHION (UPPER)	
*	3-944-621-01	CUSHION (LOWER)	

****

HARDWARE LIST

Ref. No.	Part No.	Description	Remark
#1	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#2	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#3	7-621-255-25	SCREW +PTT 2X4 (S)	
#4	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
#5	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
#6	7-682-645-01	SCREW +PS 3X4	
#7	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#8	7-682-547-04	SCREW +P 3X6	
#9	7-682-546-04	SCREW +P 3X5	
#10	7-682-548-04	SCREW +P 3X8	
#11	7-621-732-08	SET-SCT, HEX. 2X3 FLAT POINT	
#12	7-628-254-00	SCREW +PS 2.6X5	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

SECTION 7
ELECTRICAL ADJUSTMENTS

During the adjustment, see the parts arrangement diagram relevant to the adjustment on page 182.

Necessary items and indications for total adjustment of electric circuit of this unit will be described in this chapter.

[Instruments to be Used]

1) Color TV
2) Single or dual trace type oscilloscope, band more than 30 MHz, delay mode, as provided.
3) Frequency counter (4 digits or more)
4) NTSC pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion factor gauge
10) Audio multiple signal generator
11) Alignment tape
    Part code: H7099046H (MH-1)
12) Hi-Fi alignment tape
    Part code: H7099153H (Hi-Fi 400 Hz)

[Connection]

Unless otherwise specified, connect and adjust the measurement equipment as follows.

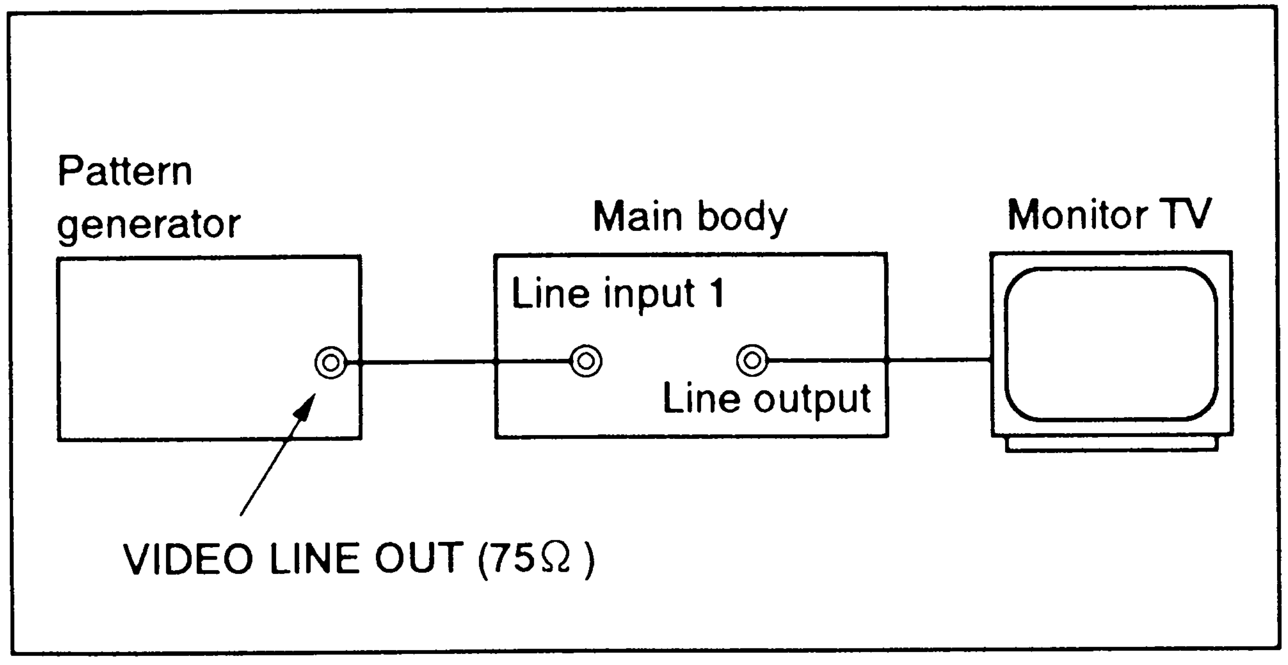


Fig. 7-1.

[Set-up for Adjustment]

The video signal from the pattern generator is used as adjustment signal for electrical adjustment. This video signal should meet the requirement. Connect the oscilloscope to the video input terminal on the MA-106 board and make sure that the amplitudes of sync signal of video signal, video portion and burst signal are flat at approximately 0.3, 0.7 and 0.3V, respectively, and that the level ratio of the burst signal and "red signal" are 0.30 : 0.66. Fig. 7-2. shows video signals (color bars) used in adjusting the electrical adjustment.

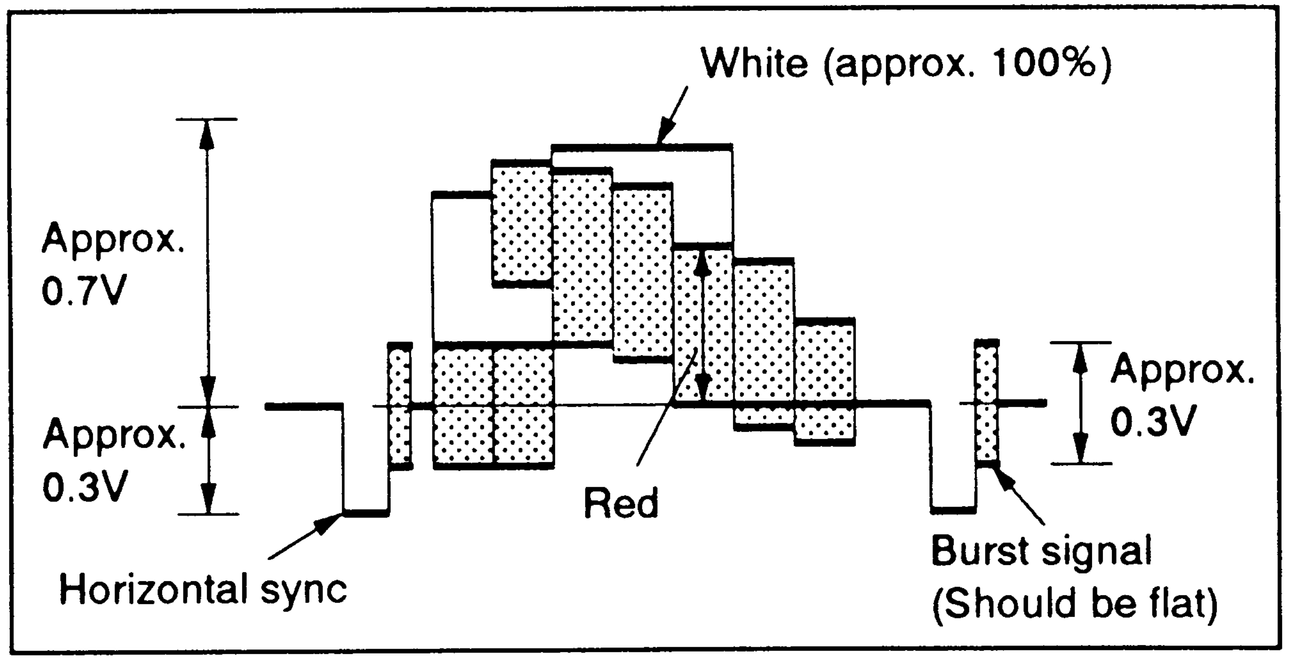


Fig. 7-2. Color bar signal of pattern generator

[Alignment Tape (MH-1)]

	Mode	Time	video signal	Audio signal
1	SP	Ten minutes	Stair-step	7 kHz
2		Five minutes	——	3 kHz
3		Ten minutes	Color bar	1 kHz
4		Three minutes	RF sweep	

[Hi-Fi Alignment Tape]

	Mode	Time	video signal	Audio signal
1	SP	Six minutes	Monaural scope	Normal: no signal HIFI: 400 Hz

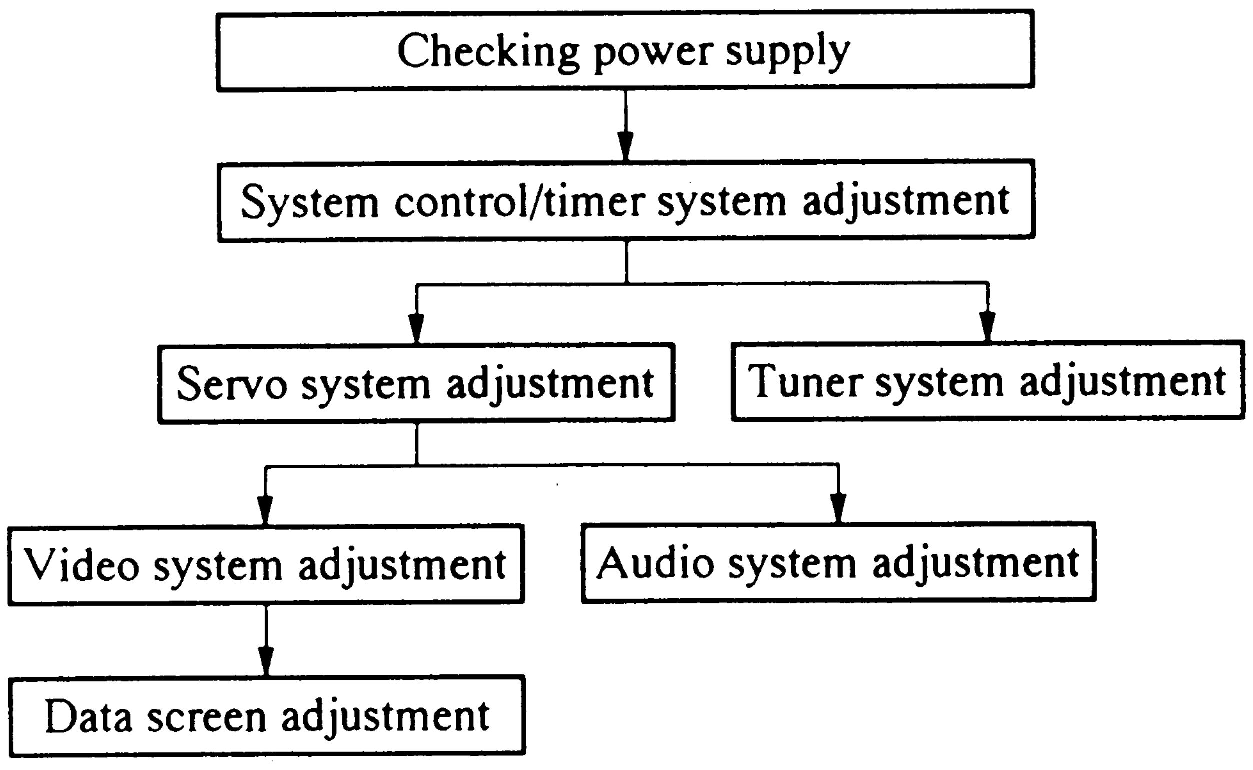
[Specified Input/Output Level Impedance]

Input/output terminal

LINE IN 1 and 2	VIDEO IN (phono jack) (1 each) Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO IN (phono jack) (2 each) Input level: −7.5 dBs (0 dBs=0.775 Vrms) Input impedance: more than 47 kilohms
LINE OUT	VIDEO OUT (phono jack) (1) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO OUT (phono jack) (2) standard output: −7.5 dBs at load impedance 47 kilohms Output impedance: less than 10 kilohms
CONTROL S IN	Mini jack (1)

[Adjustment Sequence]

Make the electrical adjustment in the following sequences.


Checking power supply
System control/timer system adjustment
Servo system adjustment
Tuner system adjustment
Video system adjustment
Audio system adjustment
Data screen adjustment

7-1. POWER SUPPLY CHECK (SR-370 BOARD)

Mode	E-E
Measurement Equipment	Digital voltmeter
UNSW 6V check	
Measurement Point	Pin ④ of CN101
Specified Value	5.9±0.25 Vdc
MTR 12V check	
Measurement Point	Pin ⑫ of CN101
Specified Value	12.3 ± 0.3 Vdc
SW 12V check	
Measurement Point	Pin ① of CN101
Specified Value	12.0±0.3 Vdc
SW 5V check	
Measurement Point	Pin ③ of CN101
Specified Value	5.1±0.2Vdc
+35V check	
Measurement Point	Pin ⑧ of CN101
Specified Value	35.0±0.3Vdc
-30V check	
Measurement Point	Pin ⑤ of CN102
Specified Value	−28.5±2.5Vdc
DC 3.2V check	
Measurement Point	Between Pin ⑥ and Pin ⑦ of CN102
Specified Value	3.0±0.3 Vdc

Checking Method:

1) Confirm that each voltage meets the specified value.

7-2. SYSTEM CONTROL/TIMER SYSTEM ADJUSTMENT

1. Clock adjustment (MF-140 board)

Measurement Point	Pin (60) of IC901
Measurement Equipment	Frequency counter (Interval counter mode)
Adjustment Element	CT901
Specified Value	0.1249995 ± 0.0000005 sec

Note: Do not adjust CT901 except when replacing IC901.

Adjustment Method:

1) Connect IC901 (63) to ground. (This puts the set into adjustment mode)
2) Connect the frequency counter as shown below.
3) Set oscillation frequency to the specified value using CT901.

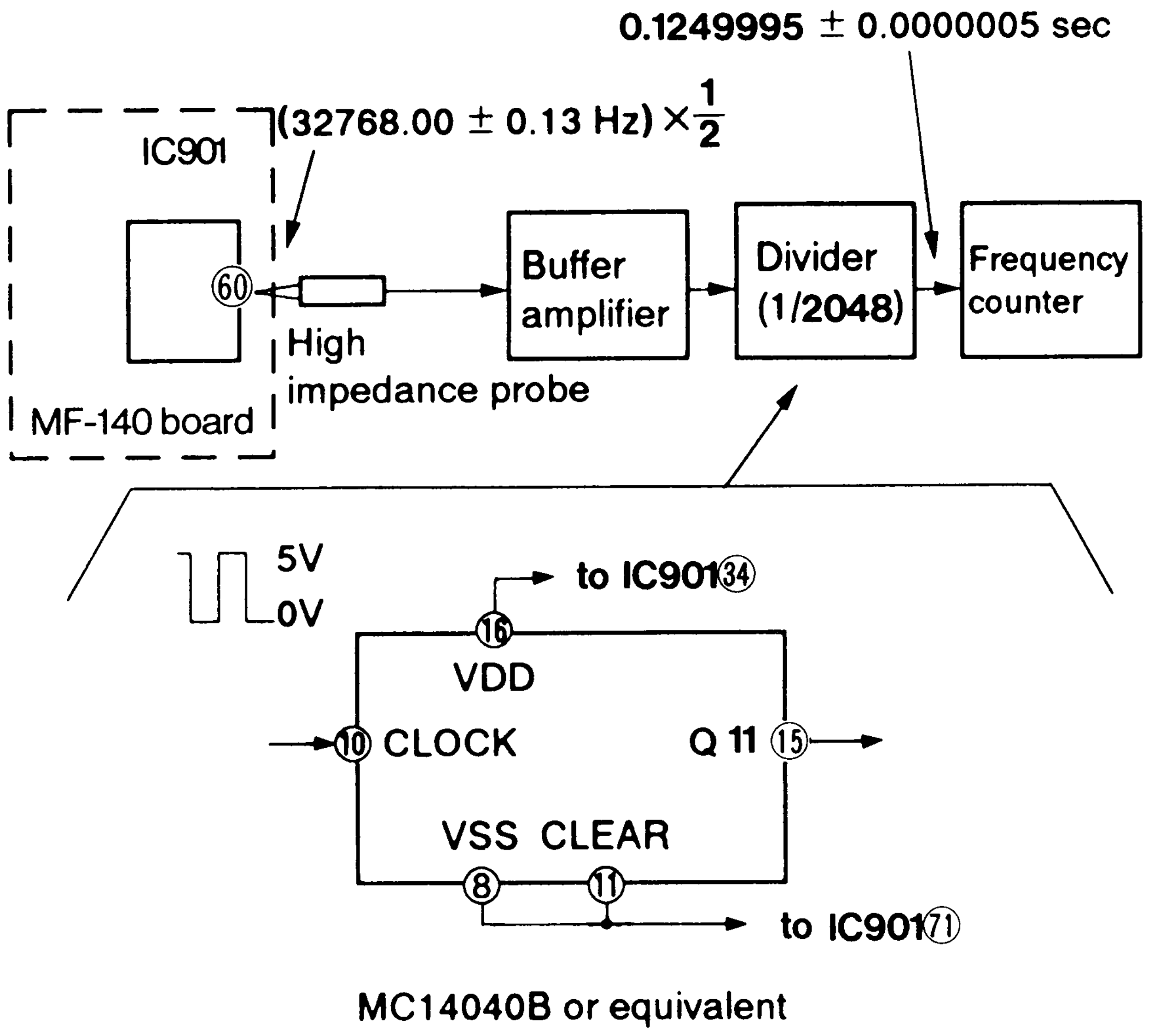

0.1249995 ± 0.0000005 sec
IC901
(32768.00 ± 0.13 Hz) × 1/2
(60)
High impedance probe
MF-140 board
Buffer amplifier
Divider (1/2048)
Frequency counter
5V
0V
to IC901㉞
⑯
VDD
⑩ CLOCK
Q 11 ⑮
VSS CLEAR
⑧
⑪
to IC901(71)
MC14040B or equivalent

Fig. 7-3.

7-3. SERVO SYSTEM ADJUSTMENT

1. V switching position adjustment (MA-106 board)

Mode	Playback
Signal	Alignment tape, Stair step
Measurement Point	CH1: VIDEO LINE OUT terminal CH2: Pin ⑪ of CN005 (RF SWP)
Measurement Equipment	Oscilloscope
Adjustment Element	RV501
Specified Value	413 ± 32 μsec (6.5 ± 0.5H)

Adjustment Method:

1) Press the tracking buttons ▼ and ▲ at a time.
2) Adjust for 413 ± 32 μsec (6.5 ± 0.5) using RV501.

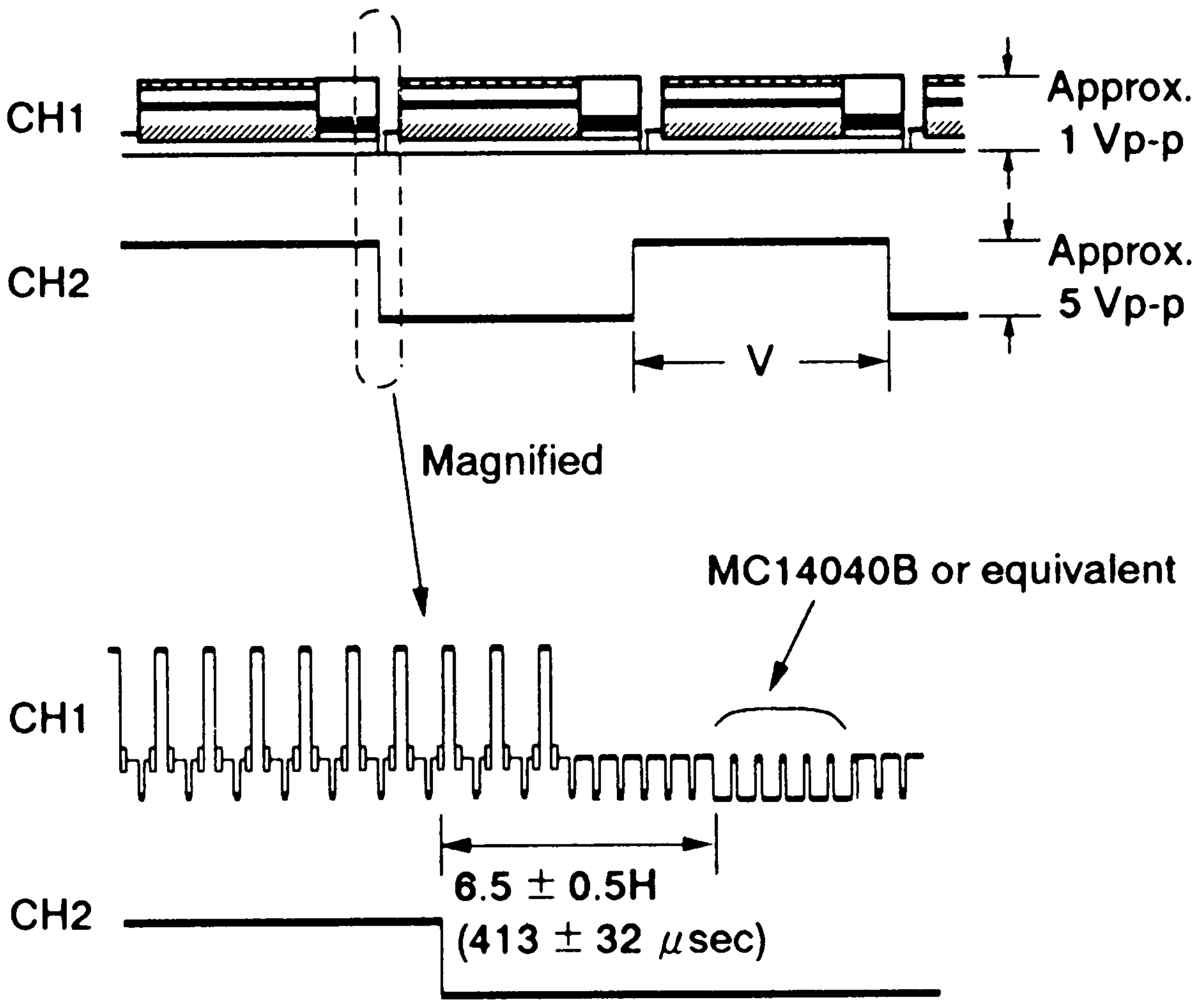

CH1
Approx. 1 Vp-p
CH2
Approx. 5 Vp-p
V
Magnified
MC14040B or equivalent
CH1
CH2
6.5 ± 0.5H
(413 ± 32 μsec)

Fig. 7-4. Switching position adjustment

7-4. VIDEO SYSTEM ADJUSTMENT

Adjust the video system in the following sequences as a rule. The color video signal supplied from the pattern generator is used as a video input signal for video system adjustment in the recording mode. Make sure that sync and color burst signals meet requirements specified at set up of adjustment shown in Fig. 7-2.

[Adjustment Sequences]

1) Crystal oscillation frequency check
2) Playback Y signal level adjustment
3) Sync AGC adjustment
4) Sync tip carrier set and deviation adjustment
5) Recording chroma signal level adjustment

1. Crystal oscillation frequency check (YC-114 board)

Mode	Playback
Signal	Any tape
Measurement Point	Pin ㉑ of IC001
Measurement Equipment	Frequency counter, Oscilloscope
Specified Value	7159090 ± 108 Hz

Note: Connect the frequency counter through a buffer amplifier (oscilloscope, etc) of high input impedance (1 MΩ or more) and low capacity (10 pF or less).

Checking Method:

1) Make sure that the frequency is 7159090 ± 108 Hz.
2) Make sure that the amplitude is 610 ±130 mp-p.

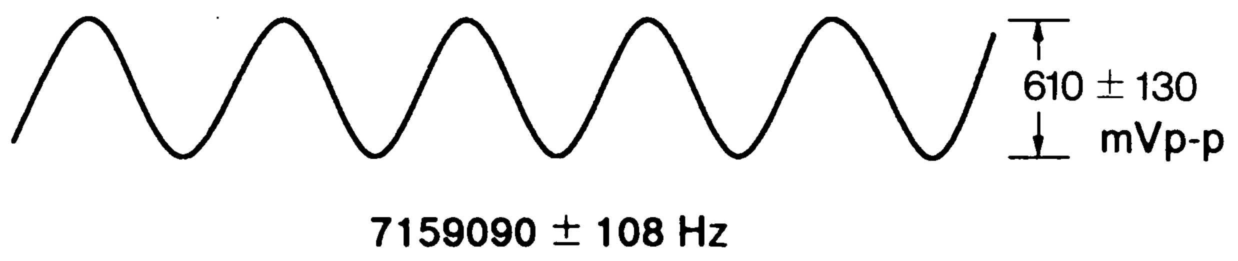


Fig. 7-5.

2. Playback Y signal level adjustment (YC-114 board)

Mode	Playback
Signal	Alignment tape, color bar
Measurement Point	VIDEO LINE OUT terminal (75Ω terminated)
Measurement Equipment	Oscilloscope
Adjustment Element	RV004
Specified Value	1.00 ± 0.05 Vp-p

Note 1: VIDEO LINE OUT should be terminated at 75Ω .
Note 2: Make this adjustment EDIT OFF condition.

Adjustment Method:

1) Adjust for 1.00 ± 0.05 Vp-p using RV004.

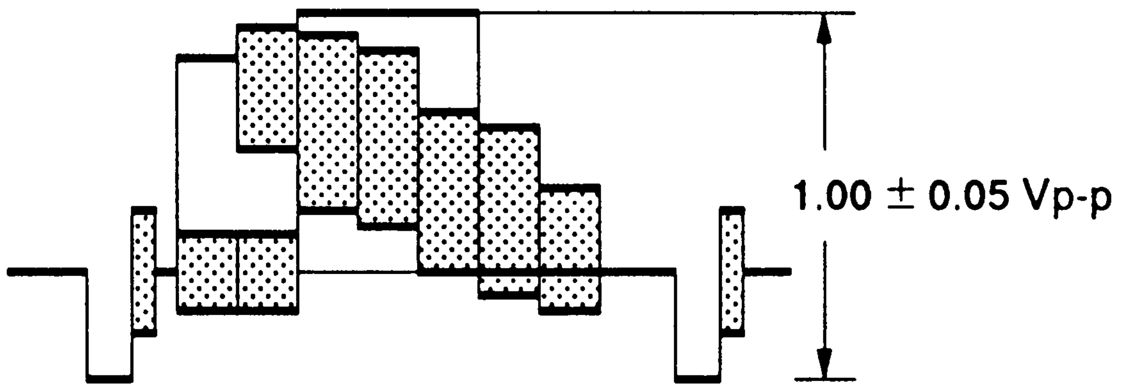


Fig. 7-6.

3. Sync AGC adjustment (YC-114 board)

Mode	Recording or EE
Signal	Color bar
Measurement Point	VIDEO LINE OUT terminal (75Ω terminated)
Measurement Equipment	Oscilloscope
Adjustment Element	RV002
Specified Value	1.00 ± 0.05 Vp-p

Note: VIDEO LINE OUT should be terminated at 75Ω .

Adjustment Method:

1) Adjust for 1.00 ± 0.05 Vp-p using RV002.

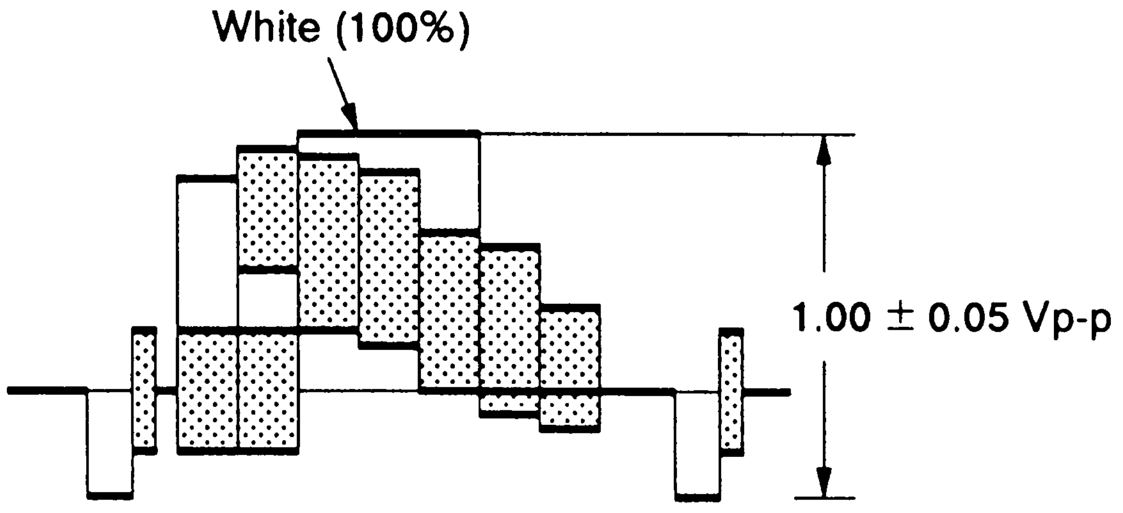


Fig. 7-7.

4. Sync tip carrier set and deviation adjustment (YC-114 board)

Before starting this adjustment, be sure to check that "2. recording Y signal level adjustment" has been completed.

Sync tip carrier set	
Mode	E-E
Signal	No signal
Measurement Point	Pin ⑩ of CN002
Measurement Equipment	Frequency counter
Adjustment Element	RV001
Specified Value	3.45 ± 0.05 MHz
Deviation adjustment	
Mode	Recording and playback
Signal	Color bar
Measurement Point	VIDEO LINE OUT terminal (75Ω terminated)
Measurement Equipment	Oscilloscope
Adjustment Element	RV003
Specified Value	1.00 ± 0.05 Vp-p

Note 1: Make this adjustment EDIT OFF condition.
Note 2: VIDEO LINE OUT should be terminated at 75Ω .

Adjustment Method:

1) Make no signal state and select the E-E mode.
2) Connect the frequency counter to the Pin ⑩ of CN002 and adjust for 3.45 ± 0.05 MHz using RV001.
3) Input the color bar signal to make recording.
4) Playback the recorded tape portion and check the play back Y signal level of VIDEO LINE OUT terminal (75Ω terminated).
   Specification: Should be 1.00 ± 0.05 Vp-p.
5) If does not meet the specification, repeat 1) to 4) after adjusting RV003.

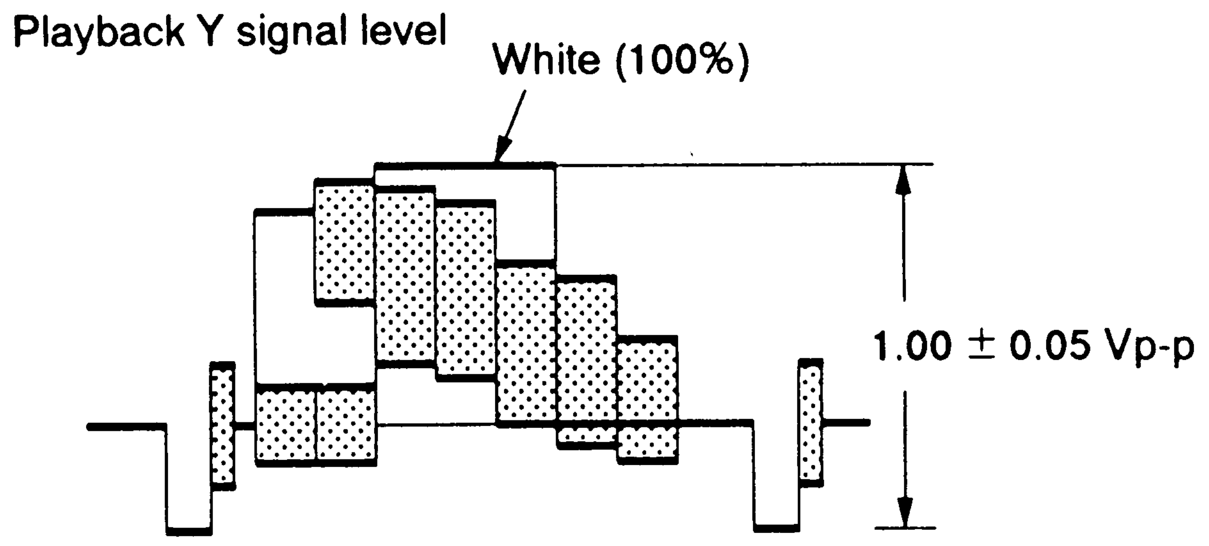


Fig. 7-8.

5. Recording chroma signal level adjustment (YC-114 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑭ of CN002
Measurement Equipment	Oscilloscope
Adjustment Element	RV005
Specified Value	200 ± 5 mVp-p

Adjustment Method:

1) Adjust the color bar "red" level to 200 ± 5 mVp-p using RV007.

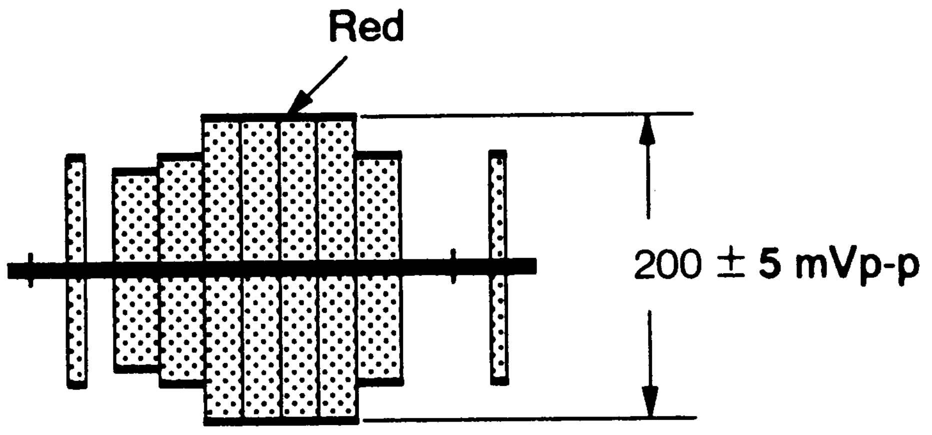


Fig. 7.9

7-5. DATA SCREEN ADJUSTMENT

1. 4 fsc clock check (CG-14 board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ㉘ of IC602 (Note 1)
Measurement Equipment	Frequency counter
Specified Value	14318180 ± 100 Hz

Note 1: Connect a probe of high input impedance (1 MΩ or more) and low capacity (10 pF or less) through 1 kΩ resistor. (1-249-417-11)

Checking Method:

1) Make sure that the clock frequency meets the specified value.
(A value approx. 100 Hz lower than the actual value may be indicated due to the probe.)

2. Character clock frequency check (CG-14 board)

Mode	Playback
Signal	Alignment tape, color bar or stair case
Measurement Point	Pin ⑤ of IC602 (Note 1)
Measurement Equipment	Frequency counter
Specified Value	7.3 ± 0.3 MHz

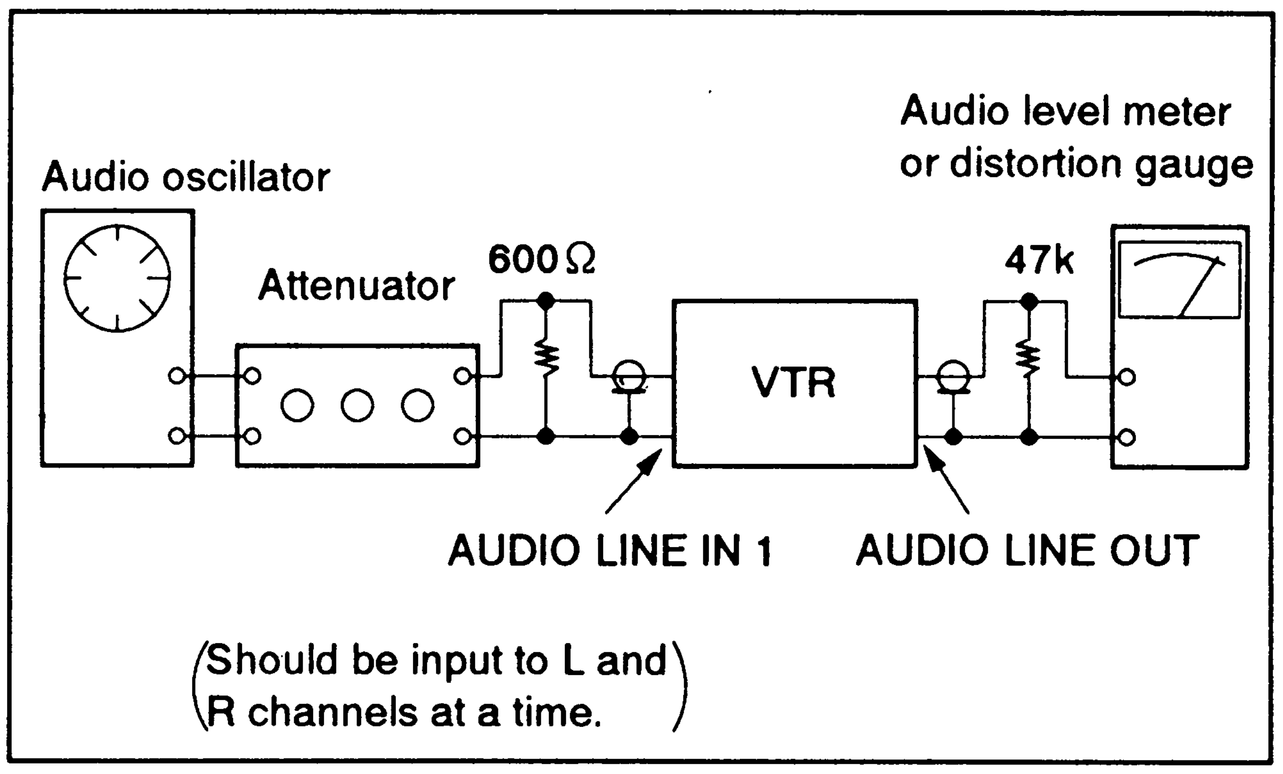
Note 1: Connect a probe of high input impedance (1 MΩ or more) and low capacity (10 pF or less) to the measurement point through 1 kΩ resistor. (1-249-417-11)

Checking Method:

1) Make sure that the clock frequency meets the specified value.
(A value approx. 0.1 to 0.2 MHz lower than the actual value may be indicated due to the probe.)
2) Make sure that tracking indication appears at the nearly center of the width when manual tracking ON.

7-6. AUDIO SYSTEM ADJUSTMENT

[Connection]



(Should be input to L and R channels at a time.)

Fig. 7-10.

7-6-1. Hi-Fi Audio System Adjustment

Unless otherwise specified, set and adjust as follows.
Input selection ············ Line 1
Audio monitor ············ Stereo

[Adjustment Sequence]

1) VCO fo adjustment
2) Band pass filter fo adjustment
3) HF Switching position adjustment
4) Hi-Fi/normal discrimination adjustment
5) Deviation adjustment
6) E-E output level check
7) Overall level characteristic check

1. VCO fo adjustment (HF-24 board)

The measurement point of the right channel is indicated in [ ].

Mode	Recording
Signal	No signal
Measurement Equipment	Frequency counter
1.3 MHz adjustment	
Measurement Equipment	Pin (79) of IC201
Adjustment Element	RV202
Specified Value	1.299±0.001MHz
1.7 MHz adjustment	
Measurement Point	Pin (69) of IC201
Adjustment Element	RV205
Specified Value	1.700±0.001MHz

Note: Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) of high input impedance (1 MΩ or more) and low capacity (10 pF or less).

Adjustment Method:

1) Connect the frequency counter to Pin (79) [(69)] of IC201.
2) Adjust for 1.299±0.001 MHz [1.700±0.001MHz] using RV202 [RV205].

2. Band-pass filter fo adjustment (HF-24 board)

Mode	Playback
Signal	Tape recorded in SP mode
Measurement Point	CH1: Pin (70) of IC201 CH2: Pin (78) of IC201
Measurement Equipment	Oscilloscope
Adjustment Element	RV204
Specified Value	A=B

Connection:

1) Remove CN006 on the MA-106 board and input 50 mVp-p, 1.72MHz sine-wave from the signal generator to Pin ⑦ of CN010.

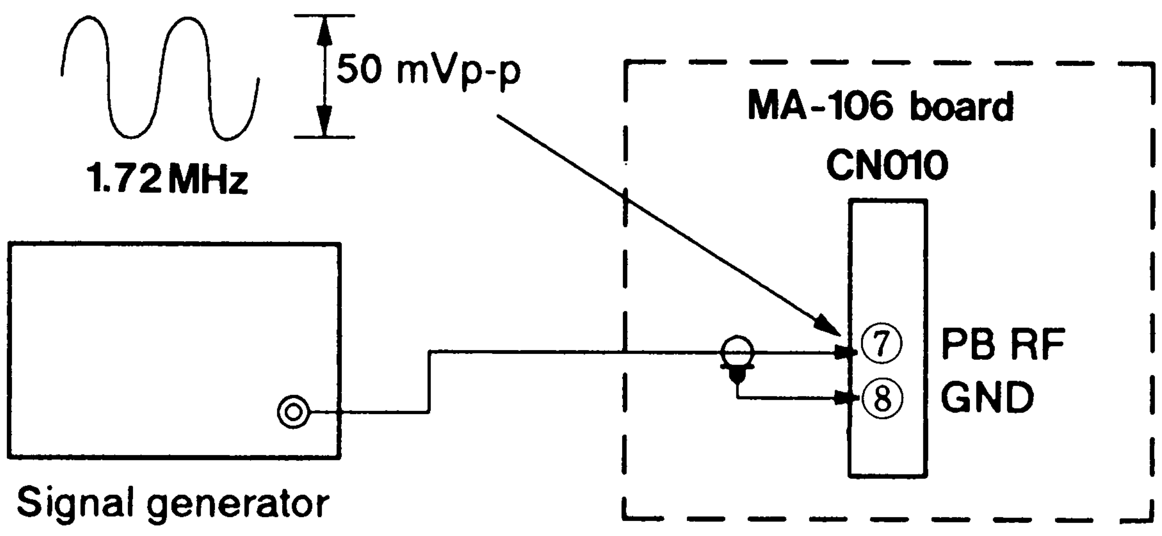


Fig. 7-11.

Adjustment Method:

1) Adjust so that the signal level of Pin (70) and (78) of IC201 are equal using RV204 (Signal level is approximately 300 mVp-p).

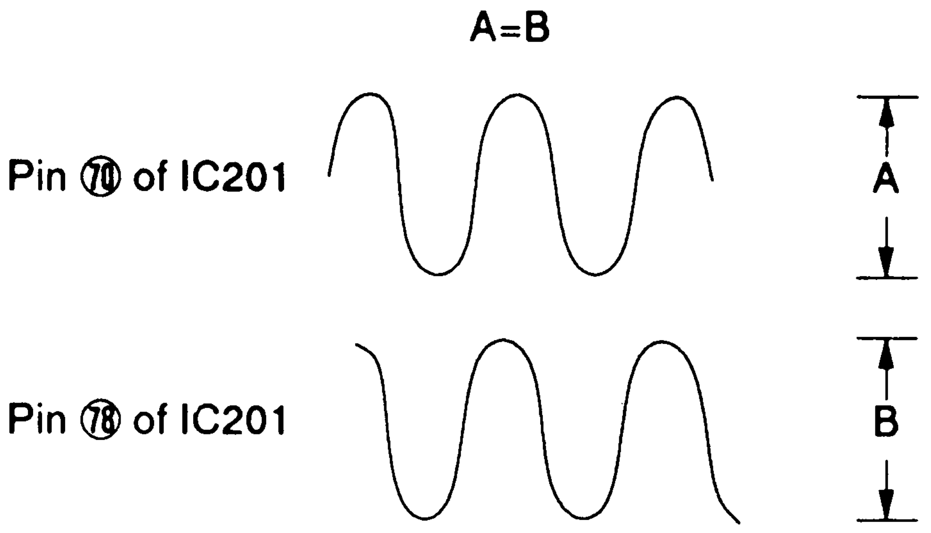


Fig. 7-12.

3. HF switching position adjustment (MA-106 board)

Mode	Playback
Signal	Hi-Fi alignment tape
Measurement Point	CH1: Pin ⑪ of CN005 (RF SWP) CH2: Pin ⑥ of CN015 (RF MONI)
Measurement Equipment	Oscilloscope
Adjustment Element	RV502
Specified Value	Be sure that there is no lacking portion.

Adjustment Method:

1) Press tracking buttons ▲ and ▼ at a time.
2) Correct the lacking portion of RF signal using RV502.

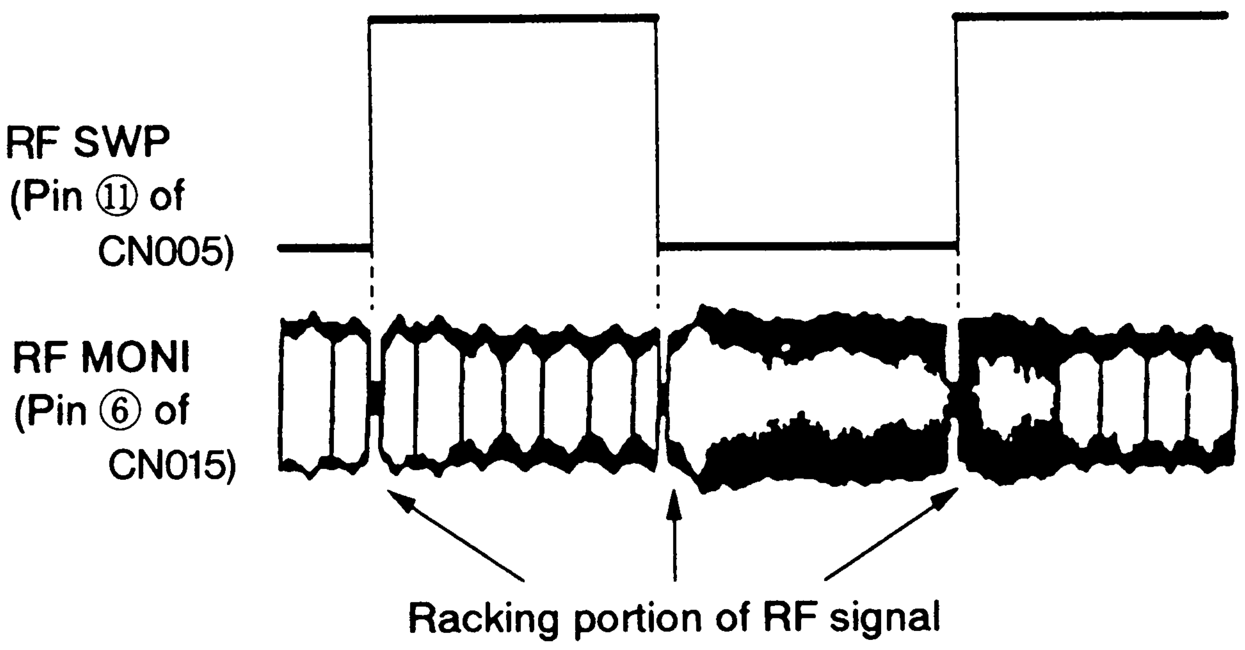


Fig. 7-13.

4. Hi-Fi/normal discrimination adjustment (HF-24 board)

Mode	Playback
Signal	Hi-Fi alignment tape
Measurement Point	CH1:Pin⑪of CN005 (RF SWP) (MA-106 broad) CH2:Pin ⑫ of CN202 (RF MONI)
Measurement Equipment	Oscilloscope
Adjustment Element	RV203
Specified Value	300 ± 10 mVp-p

Adjustment Method:

1) Adjust the RF signal level to the maximum using the tracking buttons (▲ and ▼).
2) Adjust the RF signal level to 300 ± 10 mVp-p using RV203.
3) Shift the tracking until playback picture goes out of order and check the followings.
   1. "STEREO" lit at the tracking center on the fluorescent display should be disappeared.
   2. 400 Hz audio output should be eliminated and no audio output is obtained.
      (The playback noise of normal audio can be heard.)
   3. Abnormal noise should not be generated.

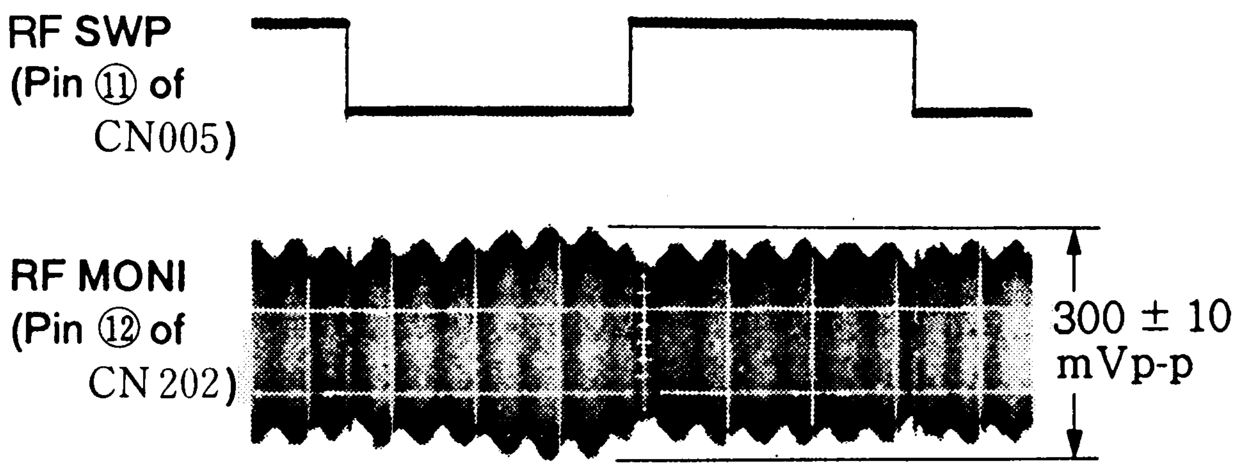


Fig. 7-14.

5. Deviation adjustment (HF-24 board)

The adjustment element of the right channel is indicated in [ ].

Mode	Playback
Signal	Hi-Fi alignment tape
Measurement Point	AUDIO LINE OUT left [right]
Measurement Equipment	Audio level meter
Adjustment Element	RV201 [RV206]
Specified Value	-7.5 ± 0.2 dBs

Adjustment Method:

1) Make sure that "STEREO" segment lights on the fluorescent display.
2) Adjust left [right] channel audio output level to -7.5 ± 0.2 dBs using RV201 [RV206].

6. E-E output level Check (HF-24 doard)

The measurement point of the right channel is indicated in [ ].

Mode	E-E
Signal	400 Hz
Measurement Point	AUDIO LINE OUT terminal left [right]
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 2 dBs

Checking Method:

1) Connect the audio level meter to Pin ⑤ [⑰] of CN201.
2) Adjust audio generator output level so that 400 Hz signal level becomes -15.5 dBs.
3) Make sure that 400 Hz signal level of left [right] channel AUDIO LINE OUT terminal is -7.5 ± 0.2 dBs.
4) Make sure that REC level indication of left [right] channel on the front panel indicates 0 dB.

7. Overall level characteristic Check

The measurement point of the right channel is indicated in [ ].

Mode	Recording and playback
Signal	400 Hz
Measurement Point	AUDIO LINE OUT terminal: left [right]
Measurement Equipment	Audio level meter
Specified Value	−7.5±2dBs

Checking Method:

1) Adjust audio generator output level so that left [right] AUDIO LINE IN level is -7.5 ± 0.1 dBs.
2) Record signal.
3) Playback the recorded portion.
4) Make sure that left [right] channel AUDIO LINE OUT level is −7.5±2dBs.

7-6-2. Normal Audio System Adjustment (MA-106 board)

- Make adjustment in the SP mode.
- Set the audio monitor in normal (*1).
  *1: A condition in which “STEREO”, “MAIN L” and “SUB R” do not appear on the fluorescent display in playback.

[Adjustment Sequence]

1) ACE head adjustment...See mechanism block adjustment.
2) Playback output level check
3) Recording bias adjustment
4) Overall level characteristic check

1. ACE head adjustment

See “Mechanism Block Adjustment”.

2. Playback output level check

Mode	Playback
Signal	Alignment tape, 1 kHz (color bar) portion
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	−1.5±2dBs

Checking Method:

1) Playback 1 kHz portion and make sure that AUDIO LINE OUT signal level is −1.5±2dBs.

3. Recording bias adjustment (MA-106 board)

Mode	Recording and playback (SP mode)
Signal	400 Hz, -30 dBs 7 kHz, -30 dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Adjustment Element	RV301
Specified Value	0±2dB

Note: Tape path adjustment should have been completed.

Adjustment Method:

1) Input signal of 400 Hz, -30 dBs simultaneously to both L and R channels of AUDIO LINE IN.
2) Make recording.
3) Set the AUDIO LINE IN signal to 7 kHz, -30 dBs and make recording.
4) Playback a recorded portion and measure output levels at 400 Hz and 7 kHz.
5) Confirm that the 7 kHz playback signal level is within a range of 0 ± 2 dB against the 400 Hz playback signal level. When beyond this range, adjust RV301 and repeat the steps (1) through (5).

4. Overall level characteristic check

Mode	Recording and playback (SP mode)
Signal	AUDIO LINE OUT terminal
Measurement Point	Audio level meter
Measurement Equipment	Playback level:-7.5 ± 2 dBs

Checking Method:

1) Input audio signal of 400 Hz, -7.5 dBs simultaneously to both L and R channels of AUDIO LINE IN.
2) Make recording.
3) Playback the recorded portion.
4) Make sure that playback level is -7.5 ± 2 dBs.

7-7. TUNER SYSTEM ADJUSTMENT

7-7-1. RF AGC Adjustment (TU-132 Board)

Signal	Broad cast TV signal
Adjustment Element	RV002

Adjustment Method:

1) Adjust the monitor TV to a maximum contrast.
2) Turn the RV002 to make snow noise visible.
3) Turn the RV002 in an opposite direction and set it to the point where the snow noise disappears.
4) Receive each channel and confirm that there are no beat picture or snow noise due to cross modulation.

7-7-2. Audio Multiple Recorder Adjustment

1. Stereo filter and VCO adjustment (TU-132 board)

[Connection]

1) Connect the audio generator, frequency counter, 10 μF capacitor (1-124-261-00) and 600Ω resistor (1-249-410-11 2pcs) as follows.
2) Tuner should be received no signal.

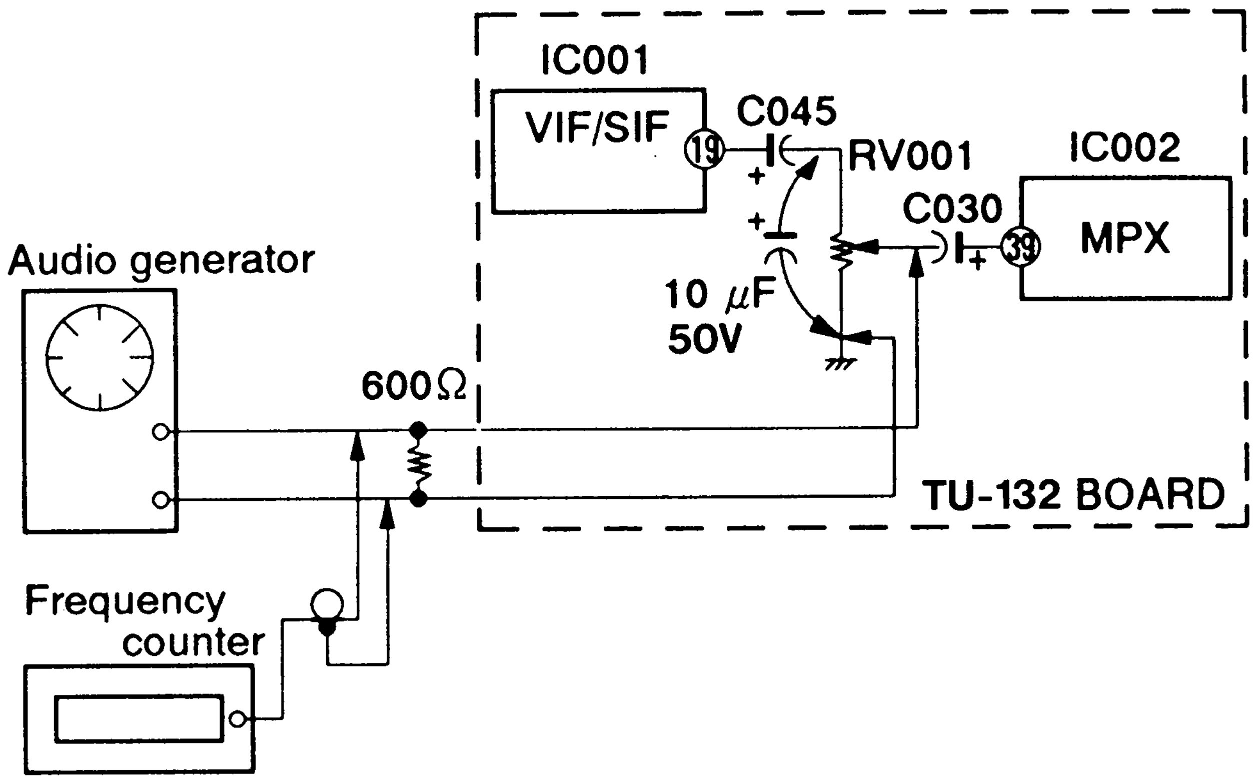


Fig. 7-15.

1-1. Stereo filter adjustment

Signal	22.9 kHz, 700 mVp-p
Measurement Point	Pin ㊱ of IC002
Measurement Equipment	Oscilloscope
Adjustment Element	RV071
Specified Value	4 mVp-p or less

Adjusting Method:
1) Connect the oscilloscope to Pin ㊴ of IC002
2) Adjust audio generator output level so that signal level of 22.9 kHz becomes 700 mVp-p.
3) Connect the oscilloscope to Pin ㊱ of IC002
4) Make signal level of 22.9 kHz minimum using RV071.

1-2. VCO adjustment

Signal	15.734 kHz, 140 mVp-p
Measurement Point	Pin ㊵ of IC002
Measurement Equipment	Oscilloscope (DC range)
Adjustment Element	RV072
Specified Value	The volt difference should be 0 ± 0.1 Vdc against when no signal input.

Adjustment Method:
1) Connect the oscilloscope to Pin ㊴ of IC002.
2) Adjust audio generator output level so that signal level of 15.734 kHz becomes 140 mVp-p.
3) Connect the oscilloscope to Pin ㊵ of IC002. (The oscilloscope is DC range.)
4) Turn the audio generator OFF and measure DC level. (DC level in no signal is approximately 4.5 Vdc.)
5) Turn the audio generator ON.
6) Make DC level equal to that in no signal using RV072.
7) Make sure that Pin ⑥ of CN001 ($\overline{\text{STEREO}}$) is "L" level.

2. Separation adjustment (TU-132 board)

Make adjustment by connecting the audio multiple signal generator to VHF/UHF input terminal.

2-1. MPX input level rough adjustment

Signal	Monaural RF signal (400 Hz, 100% MOD)
Measurement Point	Pin ㊴ of IC002
Measurement Equipment	Oscilloscope
Adjustment Element	RV001
Specified Value	245 ± 25 mVp-p (–10 ± 1 dBs)

Adjustment Method:
1) Set for 245 ± 25 mVp-p using RV001.

2-2. Separation rough adjustment

Signal	Stereo RF signal (L: 400 Hz, R: 2 kHz 30% MOD)
Measurement Point	R: Pin ④ of CN002 L: Pin ⑥ of CN002
Measurement Equipment	Oscilloscope
Adjustment Element	R: RV073 L: RV070
Specified Value	Cross talk component is minimum.

Adjustment Method:
1) Connect the oscilloscope to Pin ④ of CN002
2) Make cross talk component (400 Hz) mixed to 2 kHz signal minimum using RV073.
3) Connect the oscilloscope to Pin ⑥ of CN002
   Make cross talk component (2 kHz), mixed to 400 Hz signal, minimum using RV070.
4) Repeat steps 1) through 3). (The procedure should be ended at 3).)

2-3. Separation fine adjustment

Signal	Stereo RF signal (L: 400 Hz, R: 2 kHz 30% MOD)
Measurement Point	R: Pin ④ of CN002 L: Pin ⑥ of CN002
Measurement Equipment	Oscilloscope
Adjustment Element	R: RV001 L: RV070
Specified Value	Cross talk component is minimum.

Adjustment Method:

1) Connect the oscilloscope to Pin ④ of CN002
2) Make cross talk component (400 Hz), mixed to 2 kHz signal, minimum using RV001.
3) Connect the oscilloscope to Pin ⑥ of CN002
4) Make cross talk component (2 kHz), mixed to 400 Hz signal, minimum using RV070.
5) Make sure that the cross talk component of Pin ④ and ⑥.

* If this adjustment can not be succeeded, repeat steps from "Separation rough adjustment". (The procedure should be stopped at "Separation fine adjustment" 5.)

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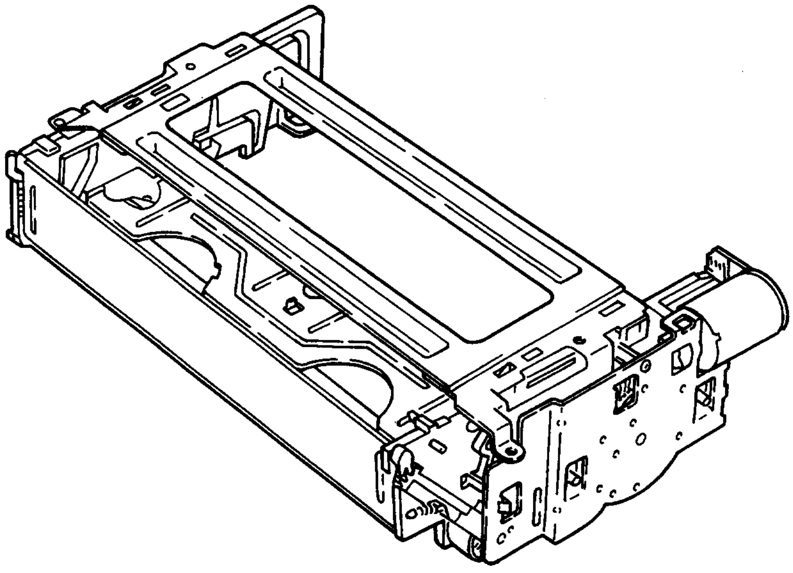
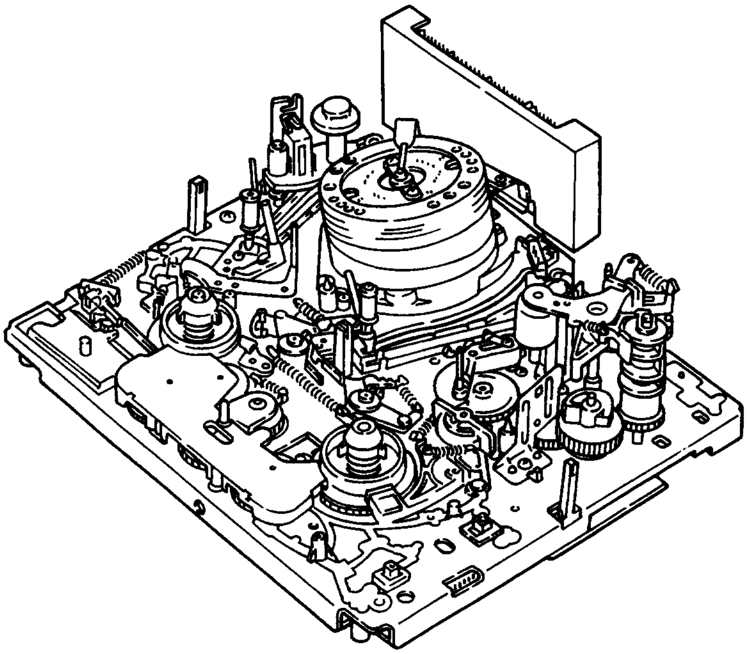
VHS MECHANICAL ADJUSTMENT MANUAL II

- Please use in conjunction with the SERVICE MANUAL.
- This VHS MECHANICAL ADJUSTMENT MANUAL II can be used for NTSC system and PAL system.





VHS VIDEO RECORDER

SONY®

MICROFILM

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1. PREPARATIONS FOR CHECKS, ADJUSTMENTS AND REPLACEMENT OF THE DECK MECHANISM

Note : Refer to "Replacement Method" in the Service Guide for instructions on replacing the cabinet and PC boards. DO not perform cassette loading or threading with the VCR positioned upside-down.

1-1. LOADING AND UNLOADING VIDEO CASSETTES WITH THE POWER OFF. (Fig. 1-1.)

1-1-1. Manual loading and unloading

1) Rotate the loading motor in the direction of arrow Ⓐ until loading is compleated.
(When unloading, rotate the loading motor in the direction of arrowⒷ.)

1-1-2. Loading and unloading using a separate power source.

1) Cassette loading is performed by applying approx. 10V (300 mA) to the power terminal of the loading motor using a stabilized DC power source.
(When unloading, apply the same voltage to the opposite polarity of the power terminal.)

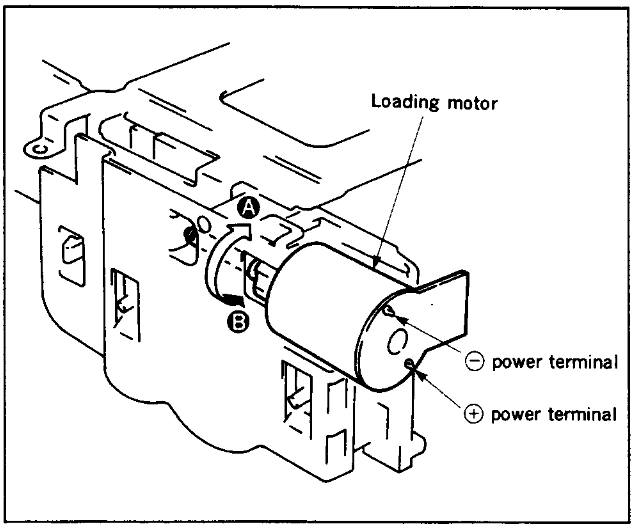


Fig. 1-1.

1-2. THREADING AND UNTHREADING WITH THE POWER OFF. (Fig. 1-2)

1-2-1. Manual threading and unthreading

1) Rotate the cam motor ❶ in the direction of arrowⒶuntil threading is completed.
(When unthreading, rotate the cam motor ❶ in the direction of arrowⒷ.)

1-2-2. Threading and unthreading using a separate power source.

1) Threading is performed by applying approx. 10V (500 mA) to the power terminal for the cam motor ❶ using a DC stabilized power source.
(When unthreading, apply the same voltage to the opposite polarity of the power terminal.)

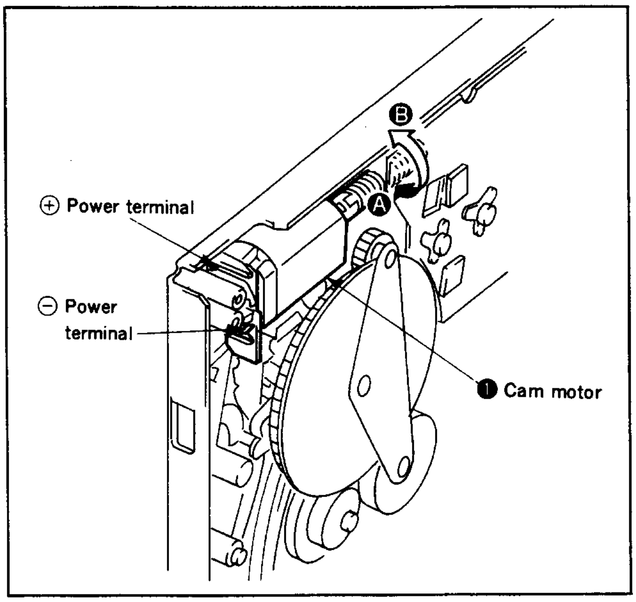


Fig. 1-2.

1-3. TO COMPLETE THREADING WITH THE FL CASSETTE CONTROLLER REMOVED. (Fig. 1-3)

1) Unplug the AC power cord from the power outlet.
2) Shield the supply, take-up sensors and the LED with black-masking tape.
3) Hold the cassatte down switch depressed by taping it, etc.
4) Plug the AC power cord into a power outlet.
   (At this time, the power should turn on and the tape rewinds for approx. 10 seconds, and the power turns off.)
5) Turn the power switch ON so that the mechanism is ready for loading.

Note : In this condition, the VTR is ready to operate in the different operating modes, including the record mode. At this time, rewind the tape for at least 15 seconds, then perform fast forward (FF).

Note : Following the above, be sure to reset the mechanism to the previous state as outlined below.

1) Remove the black-masking tape shielding the supply and take-up sensors, the LED and the tape holding cassette down switch.
2) Unplug the AC power cord from the power outlet to reset the system control microprocessor.

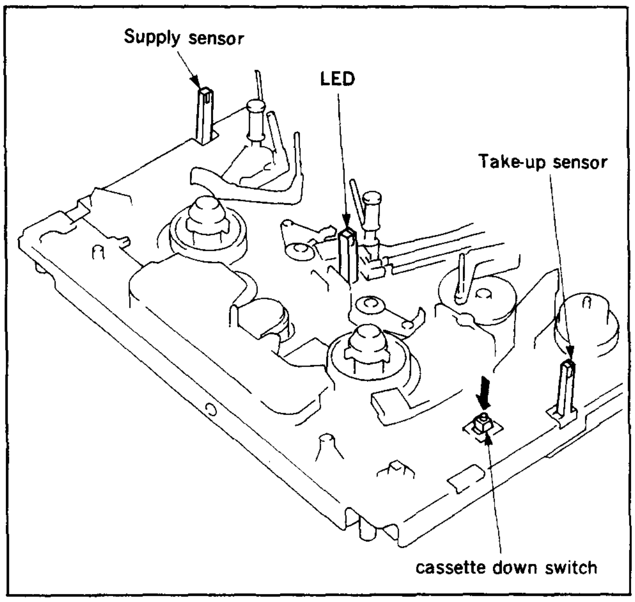


Fig. 1-3.

2. PERIODICAL INSPECTION AND REPLACEMENT

We recommend performing the following periodical inspections and maintenance in order to ensure that the unit operates in top condition and offers full performance, as well as realizes a long life of the mechanism and tapes.

* Be sure to perform the following maintenance procedures after the unit is repaired (regardless how long the unit has been used.)

2-1. CLEANING THE ROTARY HEAD DISC ASS'Y

1) Press Attach a deer skin cloth (Jig. Ref. No. J-7) soaked in cleaning solution (Jig. Ref. No. J-5) lightly to the rotary drum ass'y, then turn the rotary head disc slowly by hand to clean the surface of the rotary drum ass'y. (At this time, do not turn on the power motor to rotate the rotary head disc for cleaning.)
2) Also, do not wipe the drum ass'y by moving the deer skin cloth vertically across the head as this could damage of the tip of the head.

2-2. CLEANING THE TAPE TRANSPORT SYSTEM

1) Clean the tape transport surfaces (tape guide, a drum ass'y surfaces, capstan, pinch roller, etc.) with a deer skin cloth soaked in an approved in the recommended cleaning solution.

2-3. CLEANING THE DRIVE SYSTEM

1) Wipe the drive mechanism with an ordinary cloth soaked in an approved cleaning solution.

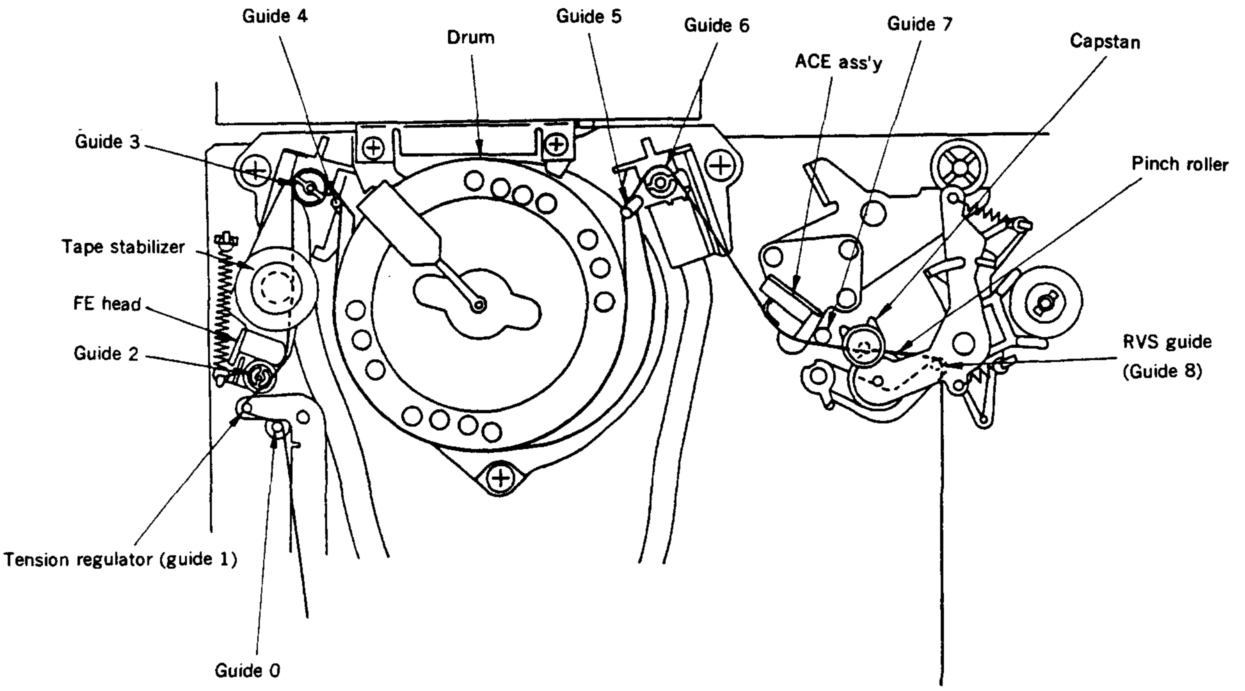

Guide 4
Drum
Guide 5
Guide 6
Guide 7
ACE ass'y
Capstan
Guide 3
Pinch roller
Tape stabilizer
FE head
Guide 2
RVS guide
(Guide 8)
Tension regulator (guide 1)
Guide 0

Fig. 2-1.

2-4. PERIODIC MAINTENANCE

Location of Maintenance and Check		User Hours / Replacement Part No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Performance Check	Clean tape running surfaces	——	○	○	○	○	○	○	○	○	○	○	Always perform after repair.
	Clean, degauss ACE ass'y	——	○	○	○	○	○	○	○	○	○	○	
	Clean, degauss video disc ass'y	——	○	○	○	○	○	○	○	○	○	○	Head life is greatly affected by environment and method of use.
Driving System	Reel belt	3-736-013-01	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Always perform after repair.
Tape Running System	Abnormal noise	——	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace source of abnormal noise.
	Back tension measurement	——	–	☆	–	☆	–	☆	–	☆	–	☆	Check according to 4-1-1. Spec : 24 — 34g/cm (Measured with torque cassette)
	Brake system check	——	–	☆	–	☆	–	☆	–	☆	–	☆	
	REC/PB function check	——	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Always perform after repair.
	Forward torque measurement		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Spec : 80 — 140 g·cm

○ Cleaning ☆ Chec

Note : Refer to the above items for part replacement whe performing an overhaul.

2-5. SERVICE TOOLS AND JIGS

Ref. No.	Description	Part No.	Printing on jig	Remarks
J-1	Master plane	H-7099-279-H		
J-2	Reel disc height jig	H-7099-038-H		
J-3	Torque gauge adapter	H-7099-035-H		
J-4	Torque gauge	H-7099-039-H		
J-5	0.93mm Allen wrench	H-7099-202-H		
J-6	NTSC torque cassette VHT-063S PAL torque cassette	J-6082-011-A J-6082-066-A		For rewind torque and back tension
	NTSC torque cassette VHT-404S PAL torque cassette	J-6082-012-A J-6082-067-A		For cue/review
J-7	NTSC alignment tape JVC-MH-1 PAL alignment tape JVC-MH-2	H-7099-046-H H-7099-052-H		
	NTSC Hi-Fi alignment tape PAL Hi-Fi alignment tape	H-7099-153-H H-7099-175-H		
J-8	Cleaning fluid	Y-2031-001-0	—	
J-9	Chamois cloth	2-034-697-00	—	Cleaning
J-10	Head degausser	Widely available	—	Video, audio head degaussing
J-11	Small adjustment mirror (with handle) Small adjustment mirror (mirror only)	J-6080-029-A J-6080-030-1	SL-5052	For tape path and tape running adjustment and check

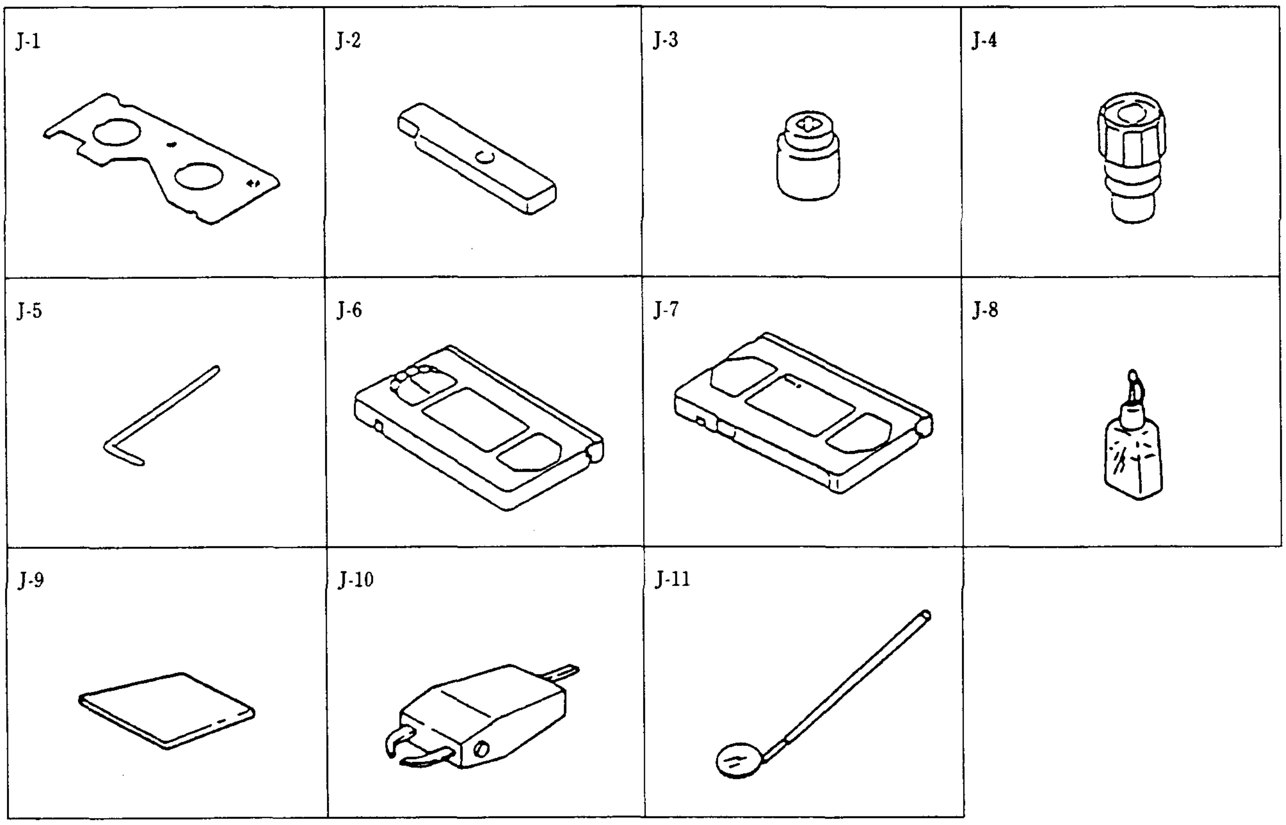


Fig. 2-2. Service tools and jigs

3. REPLACEMENT OF MAJOR COMPONENT PARTS OF THE DECK MECHANIS

Note:
- ○ Refer to "Replacement Method" in the Service Guide for replacing the cabinet and PC boards.
- ○ When mounting parts, reverse the replacement procedure while referring to "Precautions on Mounting Parts".
- ○ After grease coated parts such as gears are placed, re-grease the replaced part.
- ○ Do not touch the guides (taped surface) and bra shoe directly with your fingers or grease them, e
- ○ Gears must be mounted so that they mesh wi each other.

3-1. FL MECHANISM

3-1-1. FL door (Fig. 3-1.)

1) Press the claw ❶ in the direction of arrow Ⓐ, then remove the FL door ❷ in the direction of arrow Ⓑ.

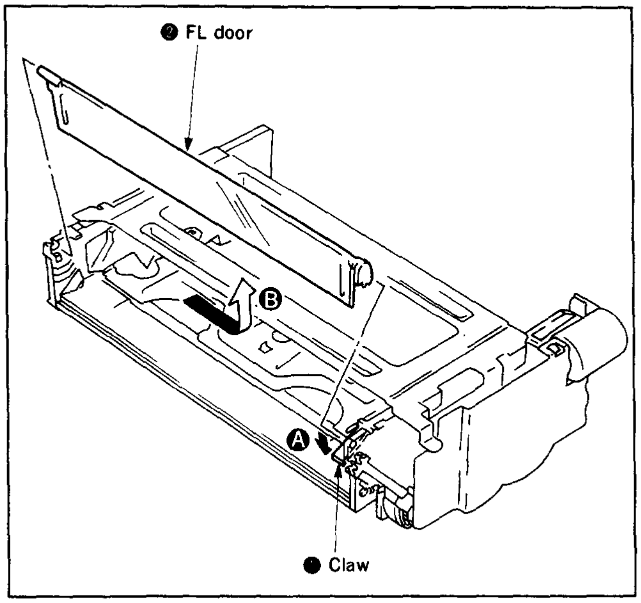

❷ FL door
Ⓑ
Ⓐ
❶ Claw

Fig. 3-1.

3-1-2. Erasure protection lever (Fig. 3-2)

1) Remove the spring ❶.
2) Disengage the claw ❷, then slide the erasure protection lever ❸ in the direction of arrow Ⓐ.
3) Disengage the erasure protection lever ❸ in the direction of arrow Ⓑ.

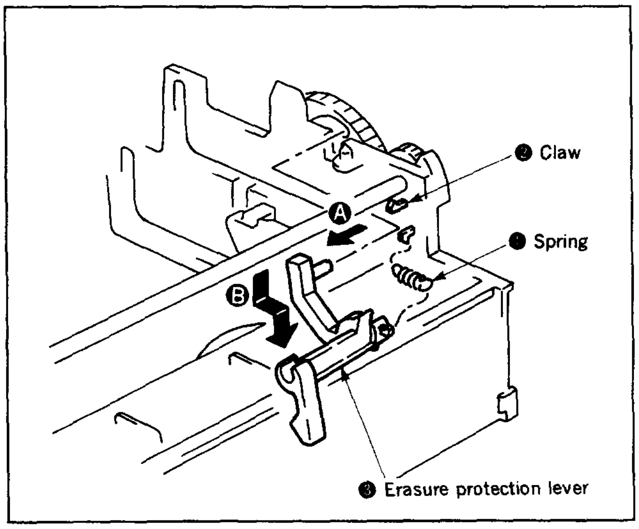

❷ Claw
Ⓐ
❶ Spring
Ⓑ
❸ Erasure protection lever

Fig. 3-2.

3-1-3. Gear cover ass'y (Fig. 3-3)

1) Disengage the four claws ❶, then remove the gear cov ass'y ❷.

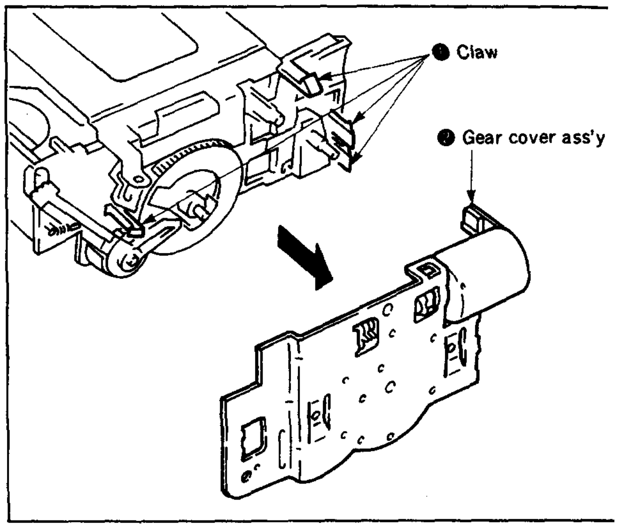

❶ Claw
❷ Gear cover ass'y

Fig. 3-3.

3-1-4. Loading motor, worm gear (FL), worm whe (FL), worm bearing (Fig. 3-4)

1) Remove washer 3 ❶, then pull out the worm wheel (F ❷.
2) Remove the two screws ❸, then remove the loadi motor ❹.
3) Remove the worm gear (FL) ❺ and worm bearing ❻.

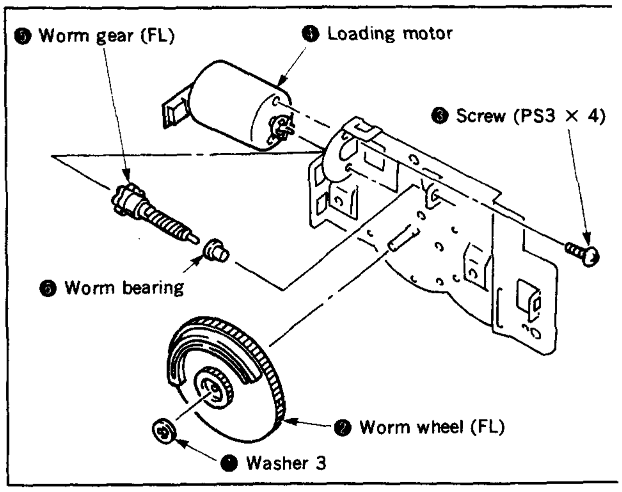

❺ Worm gear (FL)
❹ Loading motor
❸ Screw (PS3 × 4)
❻ Worm bearing
❷ Worm wheel (FL)
❶ Washer 3

Fig. 3-4.

3-1-5. Door OPEN/CLOSE arm (Fig. 3-5)

1) Remove the spring ❶.
2) Pull out the door OPEN/CLOSE arm ❷.

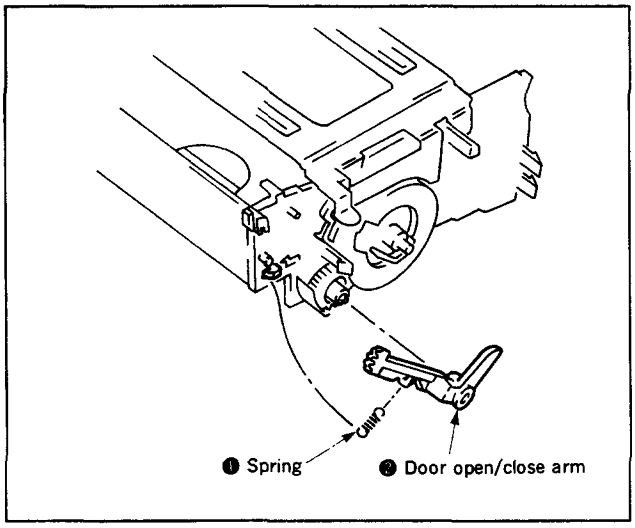

❶ Spring
❷ Door open/close arm

Fig. 3-5.

[Precautions on remounting] (Figs. 3-6 and 3-7.)

- ○ When mounting the gear cover ass'y, match up the two holes on the gear cover ass'y with the two holes on the worm wheel (FL) and then with the hole on the right drive arm ass'y.
- ○ Mesh the FL door and the door OPEN/CLOSE arm together as shown in Ⓐ section in the figure below.
- ○ The erasure protection lever shaft must fit into the groove on the left drive arm ass'y.

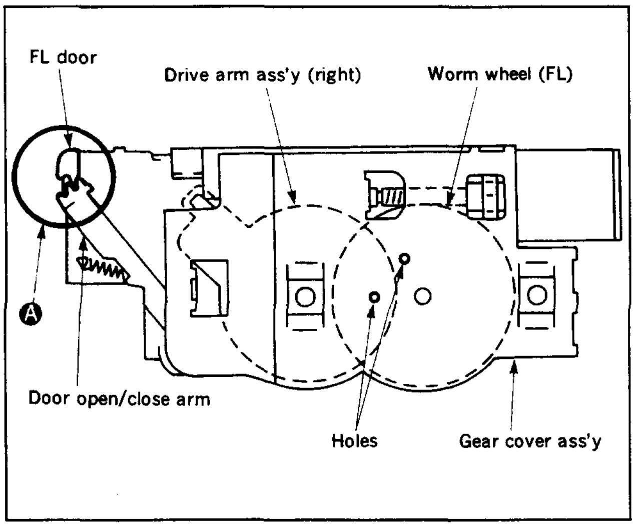

FL door
Drive arm ass'y (right)
Worm wheel (FL)
Ⓐ
Door open/close arm
Holes
Gear cover ass'y

Fig. 3-6.

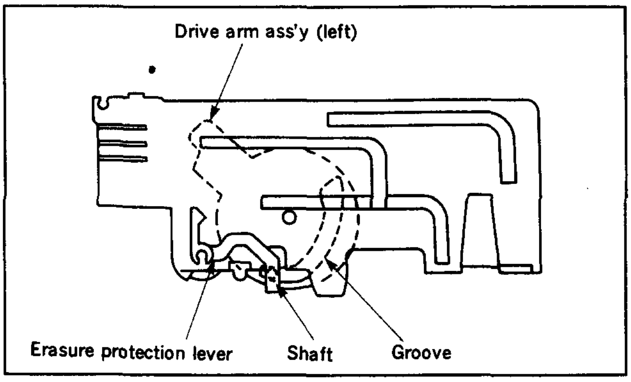

Drive arm ass'y (left)
Erasure protection lever
Shaft
Groove

Fig. 3-7.

3-2. TS ASS'Y AND GUIDE ROLLER ASS'Y No. 2 (Fig. 3-8)

1) Remove the spring ❶.
2) *Remove the TS ass'y ❷ in the direction of arrow Ⓐ.*
3) Turn guide roller ass'y No. 2 ❸ in the direction of arrow Ⓑ and pull it out.

[Precautions on remounting]

- ○ Clean the surface of guide roller No. 2 ❸ where the tape is attached.
- ○ Apply lubricant over the section shown in Figure A below.

[Adjustment after replacement]

- ○ Perform tape path adjustments as described in 4-1.

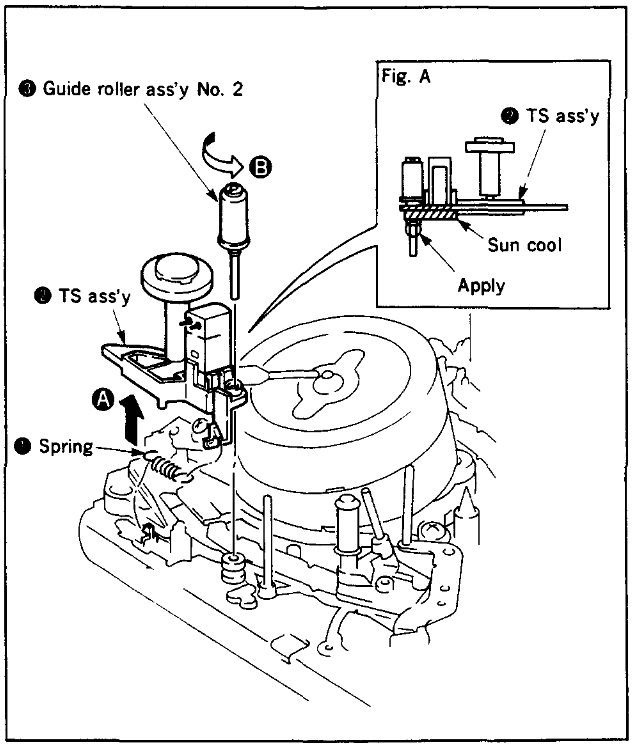

❸ Guide roller ass'y No. 2
Ⓑ
❷ TS ass'y
Ⓐ
❶ Spring
Fig. A
❷ TS ass'y
Sun cool
Apply

Fig. 3-8.

3-3. ACE ASS'Y (Fig. 3-9)

1) Slide the torsion coil spring ❶ in the direction of the arrow.
2) Remove the nylon nut N3 ❷, then pull out the ACE ass'y ❸.
3) Remove the ACE adjuster screw ❹.

[Precautions on remounting]

- ○ Clean the surface of the ACE ass'y ❸ where the tape is attached.
- ○ Hook both ends of the torsion coil spring ❶ to the ass'y as shown in Figure A below.
- ○ Adjust the ACE adjuster screw ❹ to the height shown in Figure A.

[Adjustment after replacement]

- ○ Perform tape path adjustments as described in 4-1.

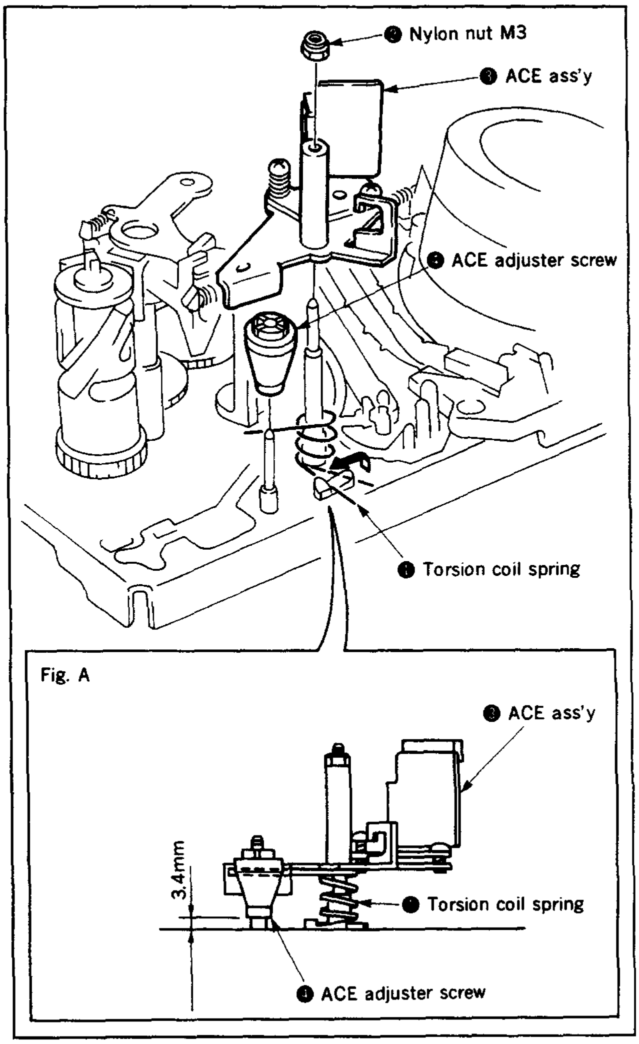

❷ Nylon nut M3
❸ ACE ass'y
❹ ACE adjuster screw
❶ Torsion coil spring
Fig. A
❸ ACE ass'y
3.4mm
❶ Torsion coil spring
❹ ACE adjuster screw

Fig. 3-9.

3-4. DRUM ASS'Y (Fig. 3-10)

1) Remove the three screws ❶, then remove the drum as ❷.

[Precautions on remounting]

- ○ Do not touch the head tips ❸ and the ground plate directly with your fingers or tools.
- ○ Clean the surface of the drum ass'y ❷ where a tape attached.
- ○ The stopper ❺ must be attached at the point shown in t figure below.
- ○ Screws must be fastened with a 6kg•cm (±1kg•cm) scre fastening torque. (The screws can be mounted in a order.)

[Adjustment after replacement]

- ○ Perform tape path adjustments as described in 4-1.

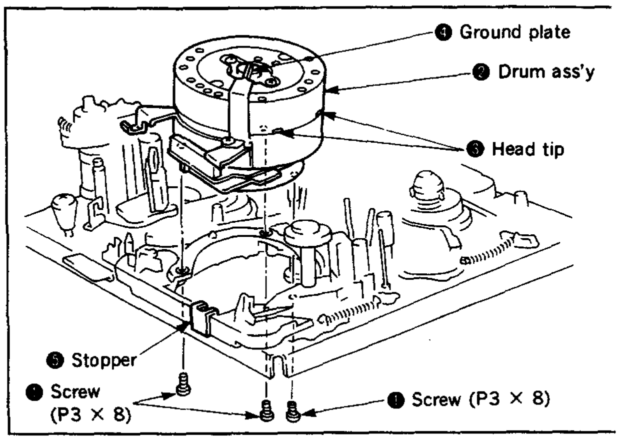

❹ Ground plate
❷ Drum ass'y
❸ Head tip
❺ Stopper
❶ Screw (P3 × 8)
❶ Screw (P3 × 8)

Fig. 3-10.

3-5. DRUM BASE ASS'Y (Fig. 3-11)

1) Remove the drum. (Refer to 3-4.)
2) Remove the three screws ❶, then remove the drum ba ass'y ❷.

[Precautions on remounting]

- ○ The spacer ❸ for the drum base must be mounted in i previous position as shown in the figure below. (Note that some units do not feature the spacer ❸.)
- ○ Fastening torque must be 10kg•cm (±1kg•cm)
- ○ The screws must be mounted in order of (a),(b) and (c).

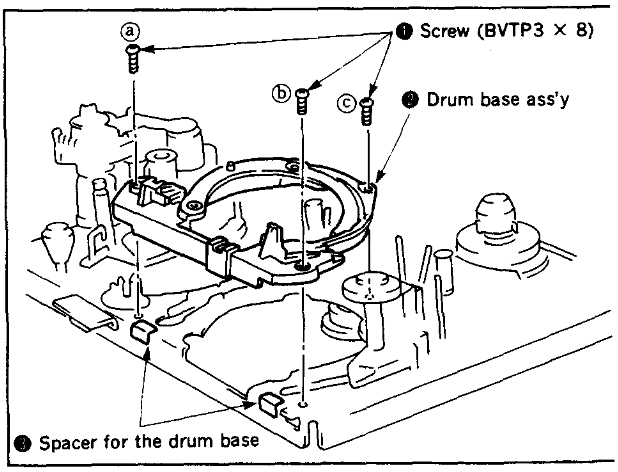

ⓐ
❶ Screw (BVTP3 × 8)
ⓑ
ⓒ
❷ Drum base ass'y
❸ Spacer for the drum base

Fig. 3-11.

3-6. PINCH ROLLER ASS'Y AND ELEVATOR CAM (Fig. 3-12)

1) Remove the two claws ❶, then pull out the stopper ❷.
2) Pull out the pinch roller ass'y ❸.
3) Pull out the elevator cam ❹.

[Precautions on remounting]

- ○ Clean the surface of the pinch roller ass'y ❸ where the tape is attached.
- ○ Match up the ▯ marks on the elevator cam ❹ and cam gear, press ❺.

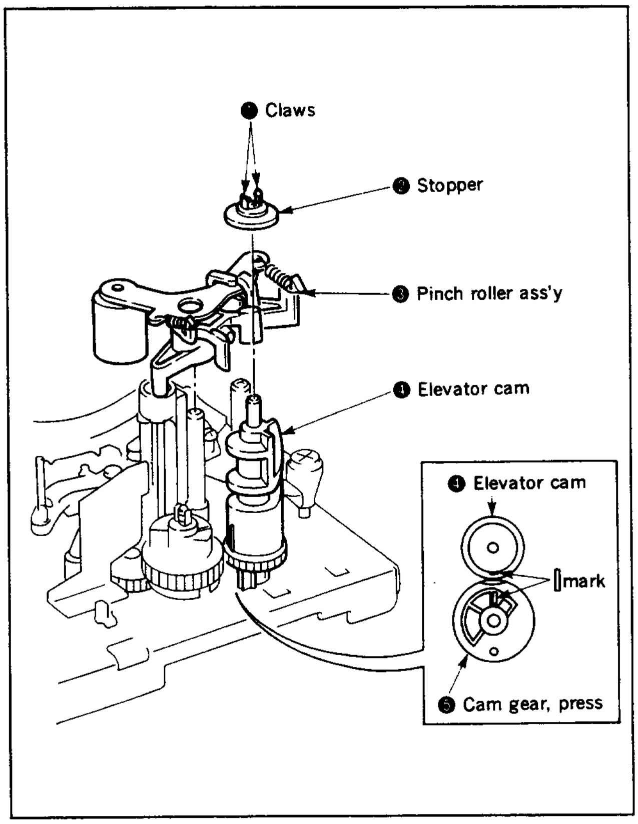

❶ Claws
❷ Stopper
❸ Pinch roller ass'y
❹ Elevator cam
❹ Elevator cam
▯mark
❺ Cam gear, press

Fig. 3-12.

3-7. CAM GEAR, PRESS AND TRANSMISSION GEAR (Fig. 3-13)

1) Remove the pinch roller ass'y. (Refer to 3-6.)
2) Remove the screw ❶, then remove the lid release plate ❷.
3) Remove the two claws ❸, then pull out the cam gear, press ❹.
4) Remove the washer 2 ❺, then pull out the transmission gear ❻.

[Precautions on remounting]

- ○ Check the top and bottom of the transmission gear ❻.
- ○ Match up the hole ❼ on the chassis with the hole ❼ on the cam gear, press ❹.
- ○ Match up the ▯ mark on the cam gear, press ❹ with the ▯ mark on the alleviator cam ❽.

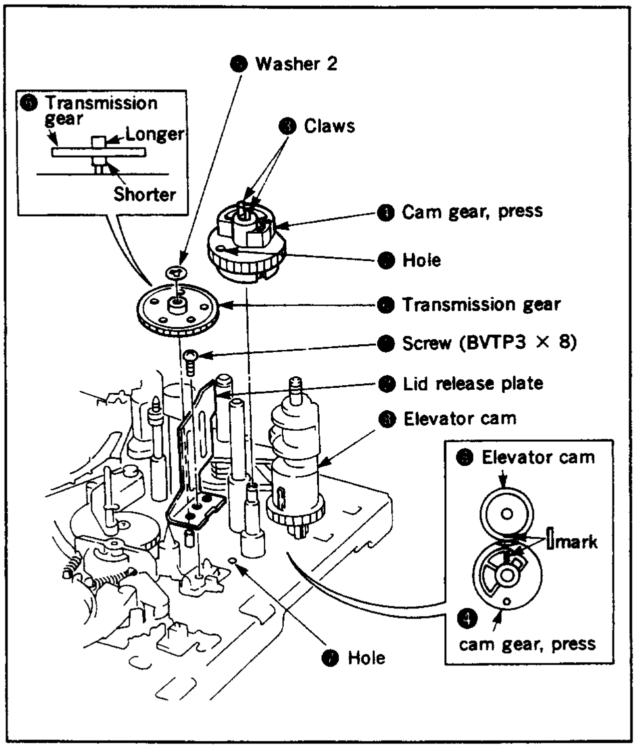

❺ Washer 2
❻ Transmission gear
Longer
Shorter
❸ Claws
❹ Cam gear, press
❼ Hole
❻ Transmission gear
❶ Screw (BVTP3 × 8)
❷ Lid release plate
❽ Elevator cam
❽ Elevator cam
▯mark
❹ cam gear, press
❼ Hole

Fig. 3-13.

3-8. RVS ARM ASS'Y AND RVS CAM GEAR (Fig. 3-14)

1) Remove the nylon nut M2 ❶ and plastic washer ❷.
2) Disengage the claw ❸, then pull out the RVS arm ass'y ❹.
3) Remove washer 2 ❺, then pull out the RVS cam gear ❻.

[Precautions on remounting]

- ○ The holes ❼ in the chassis and in the RVS cam gear ❻ must match up. Also, make sure to match up the holes ❾ on the cam gear, press ❽ and the chassis.
- ○ The spring ❿ must be hooked as shown in Fig. A below.
- ○ Clean the surface of the RVS arm ass'y ❹ where a tape is attached.
- ○ Apply 1/2 drop of lubricant to the shaft ⓫.

[Adjustment after replacement]

- ○ Perform tape path adjustments as described in 4-1.

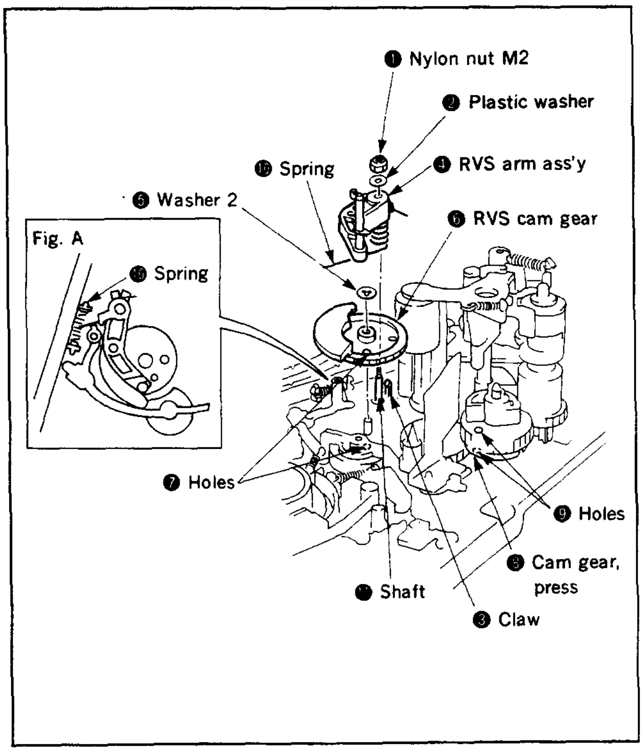

❶ Nylon nut M2
❷ Plastic washer
❿ Spring
❹ RVS arm ass'y
❺ Washer 2
❻ RVS cam gear
Fig. A
❿ Spring
❼ Holes
❾ Holes
❽ Cam gear, press
⓫ Shaft
❸ Claw

Fig. 3-14.

3-9. GUIDE No. 7 (Fig. 3-15)

1) Remove the nylon nut M3 ❶.
2) Pull out guide flange No. 7 ❷, guide sleeve No. 7 guide flange No. 7 ❹ and compression coil spring ❺ the given order.

[Precautions on remounting]

- ○ Clean the surface of the guide sleeve No. 7 ❸ where t tape is attached.
- ○ Adjust the height of guide No. 7 to the height shown Fig. A below.

[Adjustment after replacement]

- ○ Perform tape path adjustments as described in 4-1.

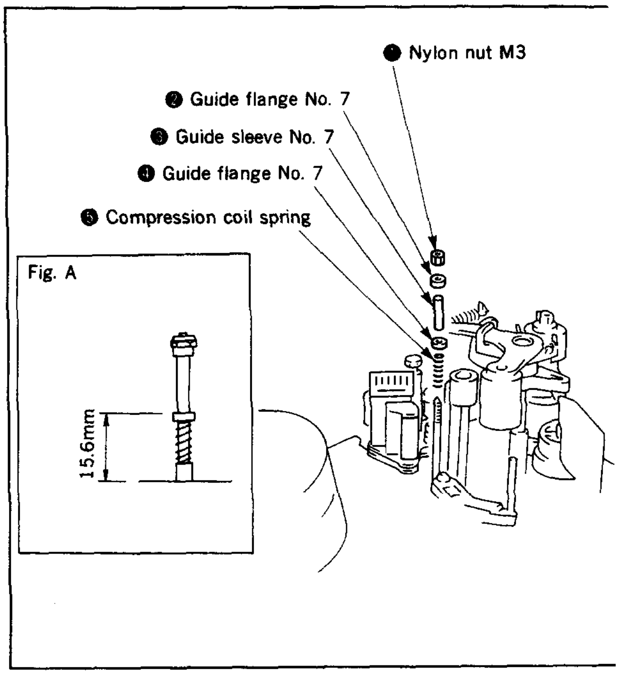

❶ Nylon nut M3
❷ Guide flange No. 7
❸ Guide sleeve No. 7
❹ Guide flange No. 7
❺ Compression coil spring
Fig. A
15.6mm

Fig. 3-15.

3-10. S-BRAKE ASS'Y, T-BRAKE ASS'Y (Fig. 3-16)

1) Remove the spring ❶.
2) Disengage the claw ❷, then pull out the S-brake ass'y ❸.
3) Disengage the claw ❹, then pull out the T-brake ass'y ❺.

[Precautions on remounting]

- ○ Do not touch the brake shoes for the respective S-brake ❸ and T-brake ❺ assy's directly with your fingers.
- ○ Do not hold on to the S-brake ❸ and T-brake ❺ assy's by the arms when inserting them.
- ○ The T-brake ass'y ❺ must be positioned above the S-brake ass'y ❸ as shown in Fig. A below.

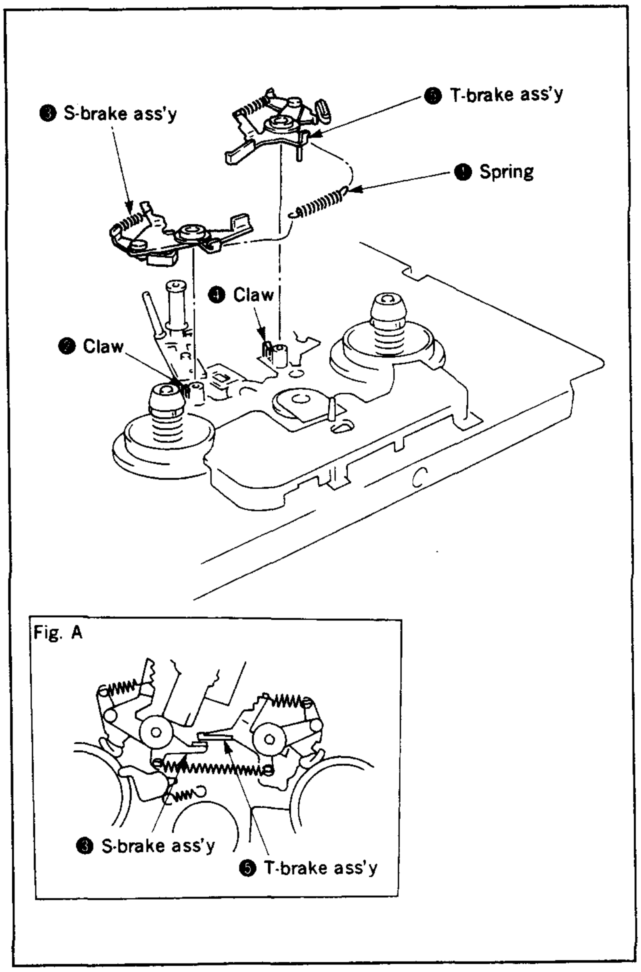

❸ S-brake ass'y
❺ T-brake ass'y
❶ Spring
❹ Claw
❷ Claw
Fig. A
❸ S-brake ass'y
❺ T-brake ass'y

Fig. 3-16.

3-11. T-SOFT BRAKE ASS'Y REV BRAKE ARM (Fig. 3-17)

1) Remove the end of the spring ❶ from the REV brake arm ❷.
2) Remove the end of the spring ❸ from the chassis.
3) Disengage the claw ❹, then pull out the T-soft brake ass'y ❺.
4) Disengage the claw ❻, then pull out the REV brake arm ❷.

[Precautions on remounting]

- ○ Do not touch the brake shoe of the T-soft brake ass'y ❺ directly with your fingers.

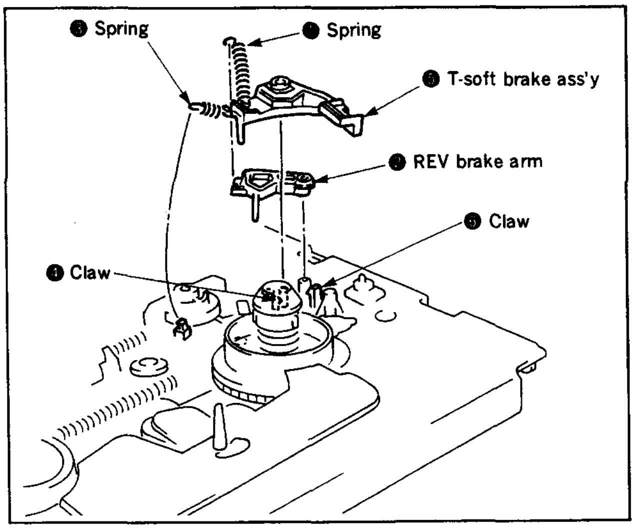

❸ Spring
❶ Spring
❺ T-soft brake ass'y
❷ REV brake arm
❻ Claw
❹ Claw

Fig. 3-17.

3-12. S-SOFT BRAKE ARM ASS'Y (Fig. 3-18)

1) Unhook the end of the spring ❶ from the chassis.
2) Disengage the claw ❷, then pull out the S-soft brake arm ass'y ❸.

[Precautions on remounting]

- ○ The S-soft brake arm ass'y must not clamp down the tension regulator band ass'y ❹ nor be positioned below the tension regulator band ❹.

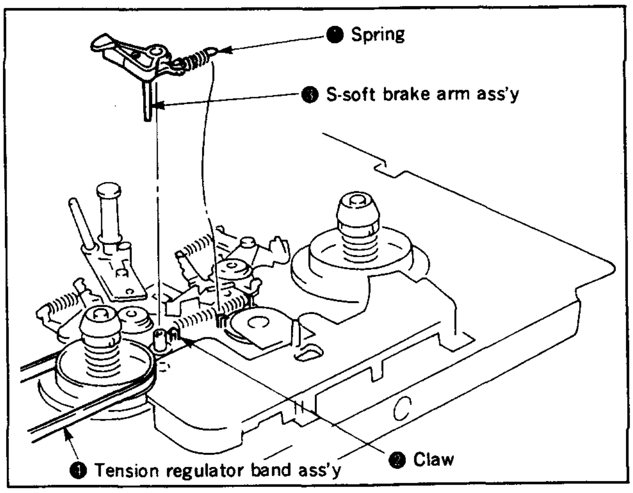

❶ Spring
❸ S-soft brake arm ass'y
❹ Tension regulator band ass'y
❷ Claw

Fig. 3-18.

3-13. S-GUIDE AND T-GUIDE ROLLER ASSY'S (Fig. 3-19)

1) Loosen the setscrew ❶, then remove the S-guide roller ass'y ❷ by turning it in the direction of the arrow Ⓐ.
2) Loosen the setscrew ❸, then remove the T-guide roller ass'y ❹ by turning it in the direction of arrow Ⓑ.

[Precautions on remounting]

○ Clean the surfaces of the S-guide roller ❷ and T-guide roller assy's ❹ where a tape is attached.

[Adjustment after replacement]

○ Perform tape path adjustments as described in 4-1.

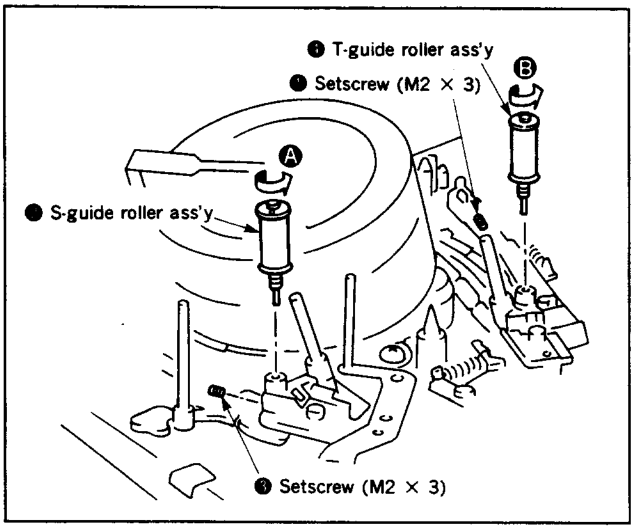

❹ T-guide roller ass'y
❸ Setscrew (M2 × 3)
Ⓑ
Ⓐ
❷ S-guide roller ass'y
❶ Setscrew (M2 × 3)

Fig. 3-19.

3-14. REEL LOCK RELEASE AND REW GEAR (Fig. 3-20)

1) Disengage the two claws ❶, then remove the reel lo release ❷ along with the spring ❸ (while the spring still attached).
2) Next, pull out the REW gear ❹ with the spring beari ❺ still attached).

[Precautions on remounting]

○ Make sure that the small thrust bearing ❻ remai attached.

○ Make sure that the two claws ❶ lock the real lock relea ❷ in place.

○ Apply 1/2 drop of lubricant to the shaft ❼.

○ Make sure that the spring ❸ adheres to the reel lo release ❷ and that it fits inside the rib of the REW ge ❹.

○ Mount the REW gear ❹ by meshing it with gear ❽.

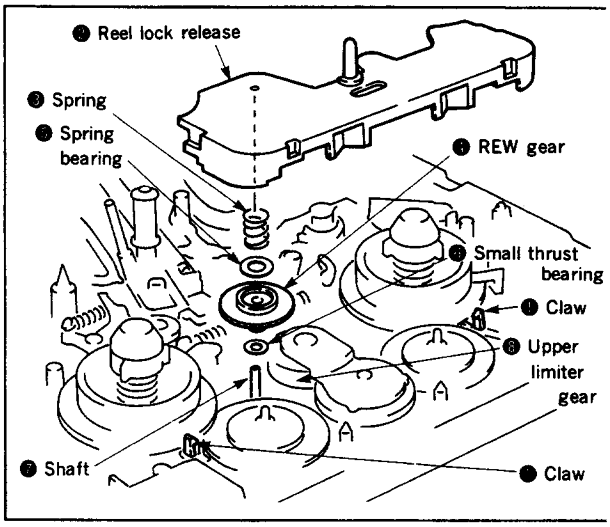

❷ Reel lock release
❸ Spring
❺ Spring bearing
❹ REW gear
❻ Small thrust bearing
❶ Claw
❽ Upper limiter gear
❼ Shaft
❶ Claw

Fig. 3-20.

3-15. TENSION REGULATOR ARM ASS'Y, TENSION REGULATOR BAND ASS'Y (Fig. 3-21)

1) Remove the reel lock release ass'y. (Refer to Fig. 3-14.)
2) Disengage the three claws marked ❶ and the claw marked ❷, then remove the tension regulator band ass'y ❸.
3) Unhook the end of the spring ❹ from the chassis.
4) Disengage the claw ❺, then pull out the tension regulator arm ass'y ❻.

[Precautions on remounting]

- ○ Roll up the tension regulator band ❸ on the S-reel by turning the S-soft brake arm ass'y ❼ in the direction of the arrow.
- ○ Hook the spring ❹ at the center of the spring hook ❽.
- ○ Do not touch the brake shoe of the tension regulator band ass'y ❸ directly with your fingers.
- ○ Mount the tension regulator arm ass'y ❻ at the position shown in Fig. A below.

[Adjustment after replacement]

- ○ Check the back tension. (Refer to 4-1-1.)
- ○ Perform tape path adjustments as described in 4-1.

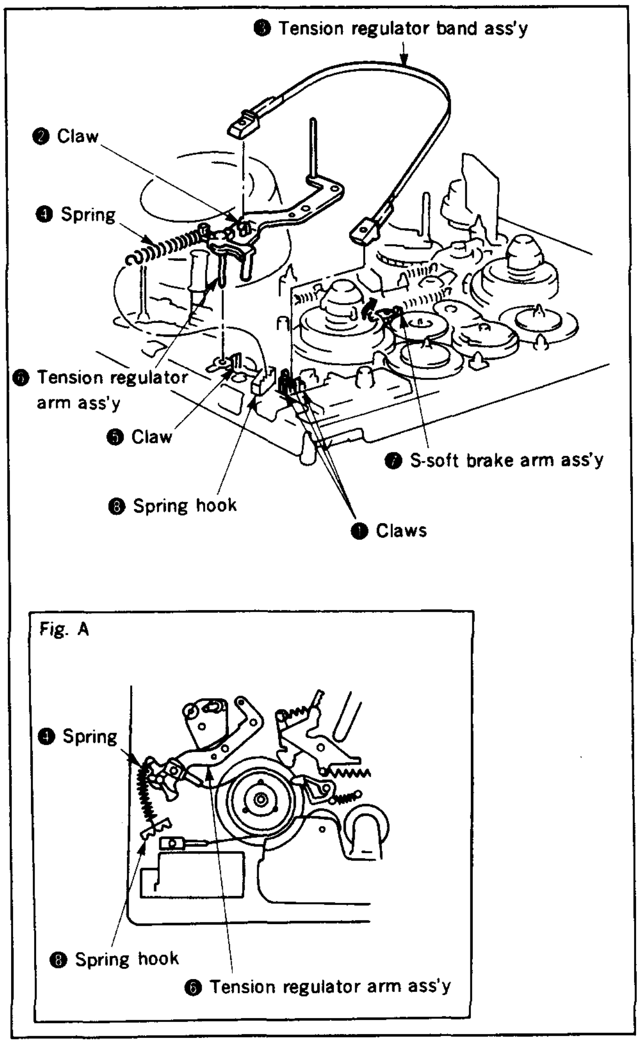

❸ Tension regulator band ass'y
❷ Claw
❹ Spring
❻ Tension regulator arm ass'y
❺ Claw
❼ S-soft brake arm ass'y
❽ Spring hook
❶ Claws
Fig. A
❹ Spring
❽ Spring hook
❻ Tension regulator arm ass'y

Fig. 3-21.

3-16. S TAKE-UP ASS'Y (Fig. 3-22)

1) Remove the tension regulator arm ass'y and the tension regulator band ass'y. (Refer to 3-15.)
2) Unhook the end of the spring ❶ from the S take-up arm ❷.
3) Disengage the two claws ❸, then remove the S take-up ass'y ❹.

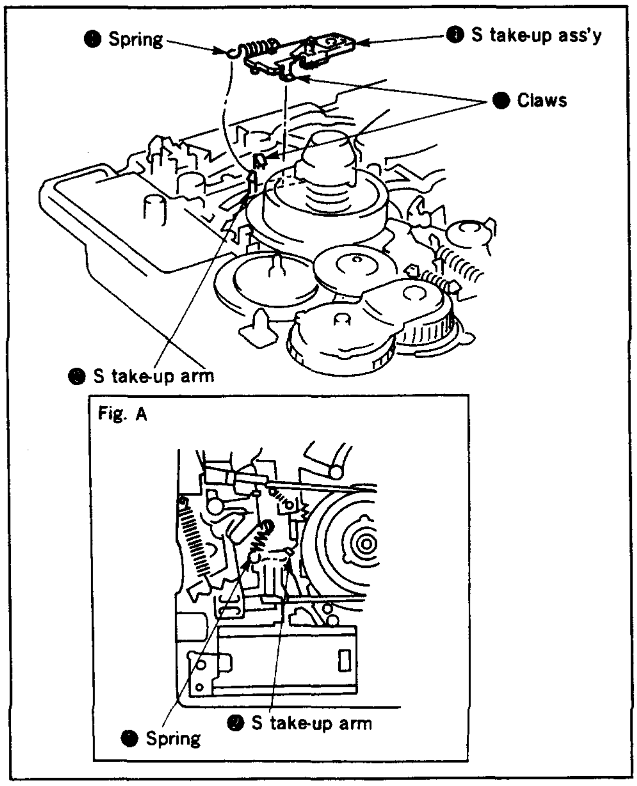

❶ Spring
❹ S take-up ass'y
❸ Claws
❷ S take-up arm
Fig. A
❶ Spring
❷ S take-up arm

Fig. 3-22.

3-17. S-REEL ASS'Y (Fig. 3-23)

1) Remove the S-soft brake arm ass'y. (Refer to 3-12.)
2) Remove the reel lock release. (Refer to 3-14.)
3) Remove the tension regulator band ass'y. (Refer to 3- 15.)
4) Turn the S-brake ass'y ❶ in the direction of the arrow.
5) Pull out the S-reel ass'y ❷.

[Precautions on remounting]

○ At least one reel stand thrust bearing ❸ must be attached (but not more than two).
○ Do not touch the outer edge of the S-reel ass'y ❷ directly with your fingers.
○ Apply 1/2 drop of lubricant over the shaft ❹.
○ Mount the S-reel ass'y ❷ while meshing it with the relay gear ❺.

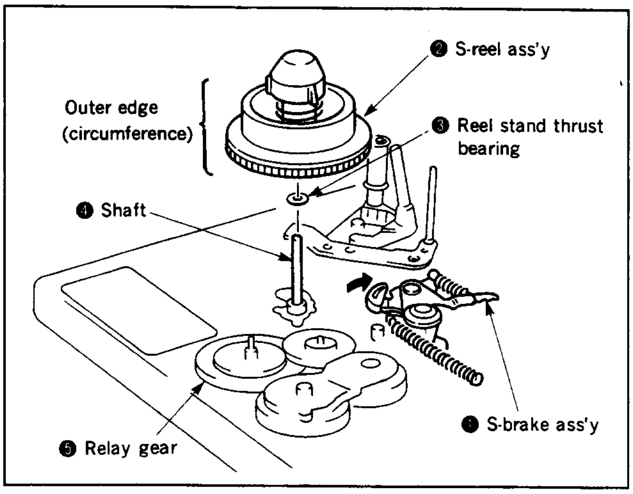

❷ S-reel ass'y
Outer edge (circumference)
❸ Reel stand thrust bearing
❹ Shaft
❶ S-brake ass'y
❺ Relay gear

Fig. 3-23.

3-18. T-REEL ASS'Y (Fig. 3-24)

1) Remove the T-soft brake ass'y. (Refer to 3-11.)
2) Remove the reel lock release ass'y. (Refer to 3-14.)
3) Turn the T-brake ass'y ❶ in the direction of the arrow.
4) Pull out the T-reel ass'y ❷.

[Precautions on remounting]

○ At least one reel stand thrust bearing ❸ must be attached (but not more than two).
○ Do not touch the outer edge of the T-reel ass'y ❷ directly with your fingers.
○ Apply 1/2 drop of lubricant on the shaft ❹.
○ Mount the T-reel ass'y ❷ while meshing it with the relay gear ❺.

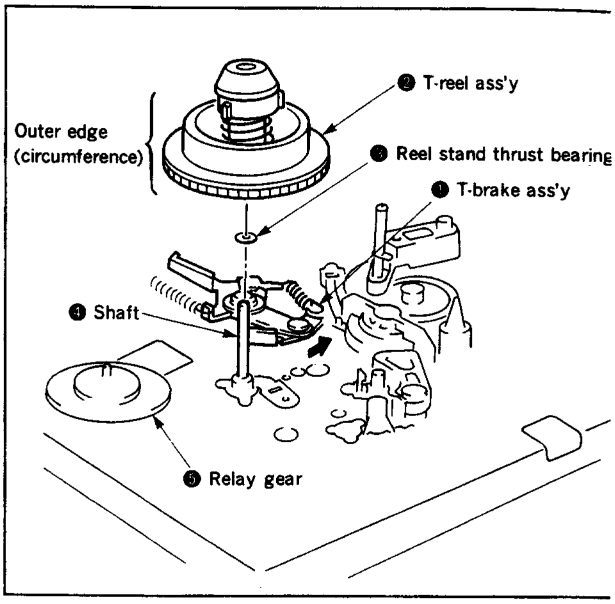

❷ T-reel ass'y
Outer edge (circumference)
❸ Reel stand thrust bearing
❶ T-brake ass'y
❹ Shaft
❺ Relay gear

Fig. 3-24.

3-19. PENDULUM ARM ASS'Y (Fig. 3-25)

1) Remove the reel lock release ass'y. (Refer to 3-14.)
2) Remove the washer 2 ❶, then pull out the pendulum ar ass'y ❷.

[Precautions on remounting]

○ Fit the boss on the pendulum cap ❸ into the gap in tl pendulum slide plate ❹.
○ The plastic slider ❺ must be attzched.
○ Apply 1/2 drop of lubricant on the shaft ❻.
○ Mount the pendulum arm ass'y ❷ by meshing it with tl upper limiter gear ❼.

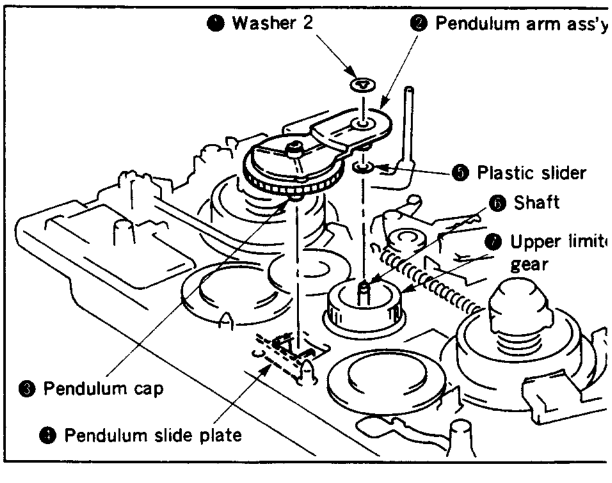

❶ Washer 2
❷ Pendulum arm ass'y
❺ Plastic slider
❻ Shaft
❼ Upper limit gear
❸ Pendulum cap
❹ Pendulum slide plate

Fig. 3-25.

3-20. RELAY GEAR (Fig. 3-26)

1) Remove the reel lock release and REW gear. (Refer to 3-14.)
2) Remove the S-reel ass'y. (Refer to 3-17.)
3) Remove the T-reel ass'y. (Refer to 3-18).
4) Pull out the two relay gears ❶.

[Precautions on remounting]

○ The relay gears ❶ must rotate smoothly after remounting.

○ Apply 1/2 drop of lubricant to the respective shafts ❷.

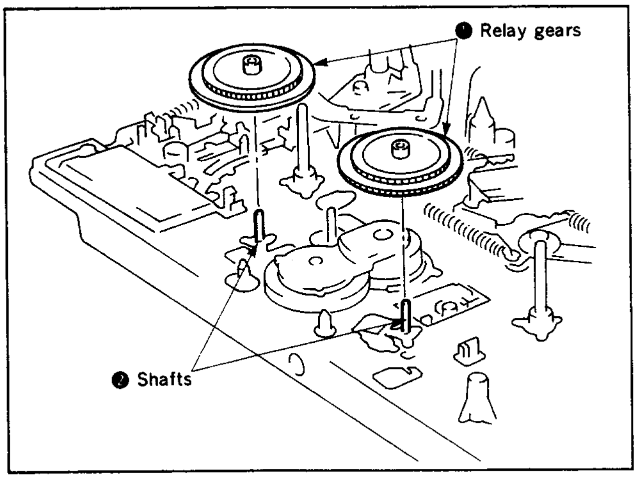

❶ Relay gears
❷ Shafts

Fig. 3-26.

3-21. ADJUSTER ARM ASS'Y (Fig. 3-27)

1) Remove screw ❶.
2) Remove washer ❻.
3) Remove the end of the spring ❷ hooked to the chassis.
4) Remove the end of the timing belt ❸ from the capstan motor arm ass'y.
5) Disengage the claw ❹, then remove the adjuster arm ass'y.

[Precautions on remounting]

○ First mount the adjuster arm ass'y ❺, timing belt ❸ and spring ❷, then attach the washer ❻ and fasten the screw ❶.

○ The screw fastening torque must be within 5kg•cm (±1kg•cm).

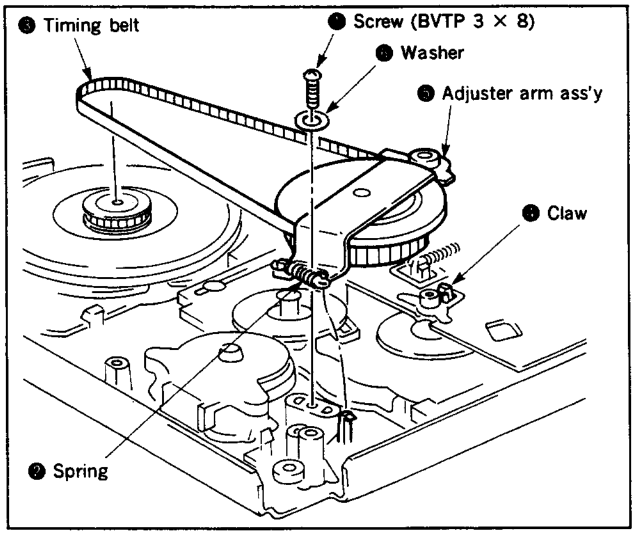

❸ Timing belt
❶ Screw (BVTP 3 × 8)
❻ Washer
❺ Adjuster arm ass'y
❹ Claw
❷ Spring

Fig. 3-27.

3-22. CAP BRAKE ASS'Y (Fig. 3-28)

1) Loosen the screw ❶, then push the timing belt ❷ in the direction of the arrow.
2) Unhook the end of the spring ❸ from the chassis.
3) Disengage claw ❹, then pull out CAP brake ass'y ❺.

[Precautions on remounting]

○ Do not touch the brake shoe of the CAP brake ass'y ❺ directly with your fingers.

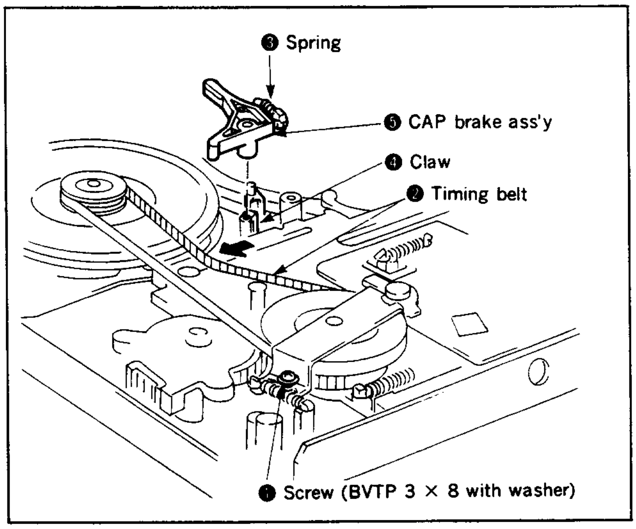

❸ Spring
❺ CAP brake ass'y
❹ Claw
❷ Timing belt
❶ Screw (BVTP 3 × 8 with washer)

Fig. 3-28.

3-23. CAPSTAN MOTOR (Fig. 3-29)

1) Turn the ACE ass'y ❶ in the direction of arrow Ⓐ as shown in Fig. A below, then remove three screws ❷.
2) Remove screw ❸, then remove the rotor clamp ❹.
3) Turn the CAP brake ass'y ❺ in the direction of arrow Ⓑ, then pull out the capstan motor ❻.

[Precautions on remounting]

- ○ Clean the section of the capstan motor ❻ where the tape is attached.
- ○ Do not touch the brake shoe of the CAP brake ass'y ❺ directly with your fingers.
- ○ Of the three screws ❷, first fasten screw A temporarily, then fasten screws B and C firmly, followed by screw A.
- ○ The screw fastening torque must be within 3kg•cm ± 1kg•cm.

[Adjustments after mounting]

- ○ Perform tape path adjustments as described in 4-1.

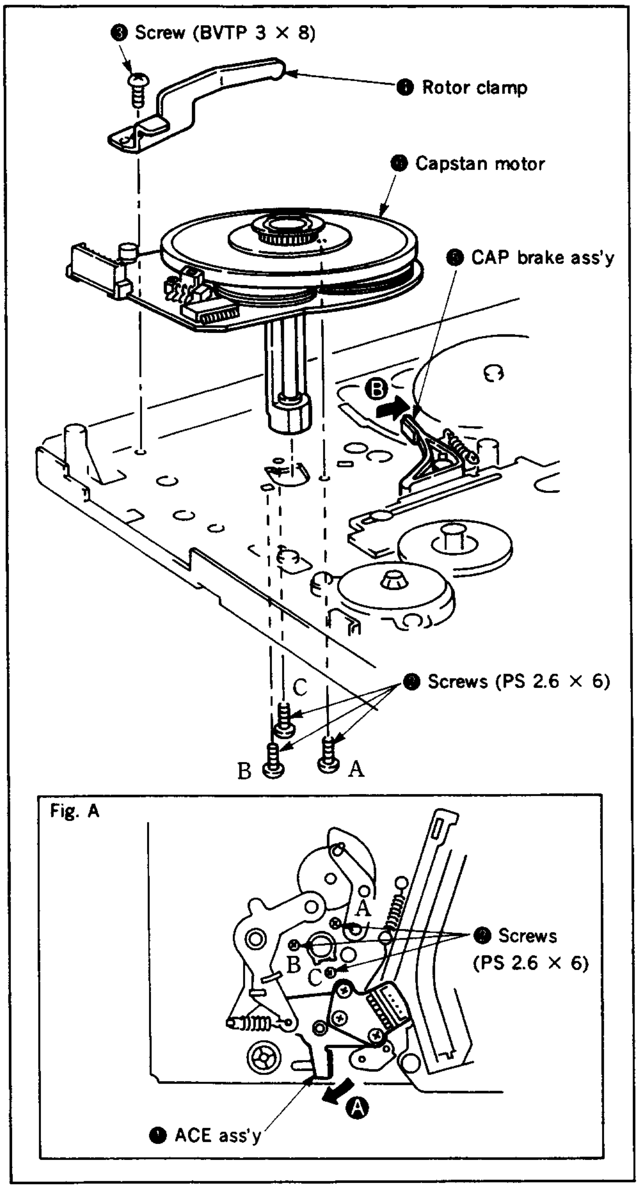

❸ Screw (BVTP 3 × 8)
❹ Rotor clamp
❻ Capstan motor
❺ CAP brake ass'y
Ⓑ
❷ Screws (PS 2.6 × 6)
C
B
A
Fig. A
A
B
C
❷ Screws (PS 2.6 × 6)
❶ ACE ass'y
Ⓐ

Fig. 3-29.

3-24. ROTARY SWITCH (Fig. 3-30)

1) Remove the adjuster arm ass'y. (Refer to 3-21.)
2) Remove the screws ❶ and ❷, then pull out the rot switch ❸.

[Precautions on remounting]

- ○ Match up the ● mark on the rotary switch ❸ with the mark on the RKB cam gear ❹ as shown in Fig. A.
- ○ Match up holes ❺ on the pendulum arm ❻ and the chas

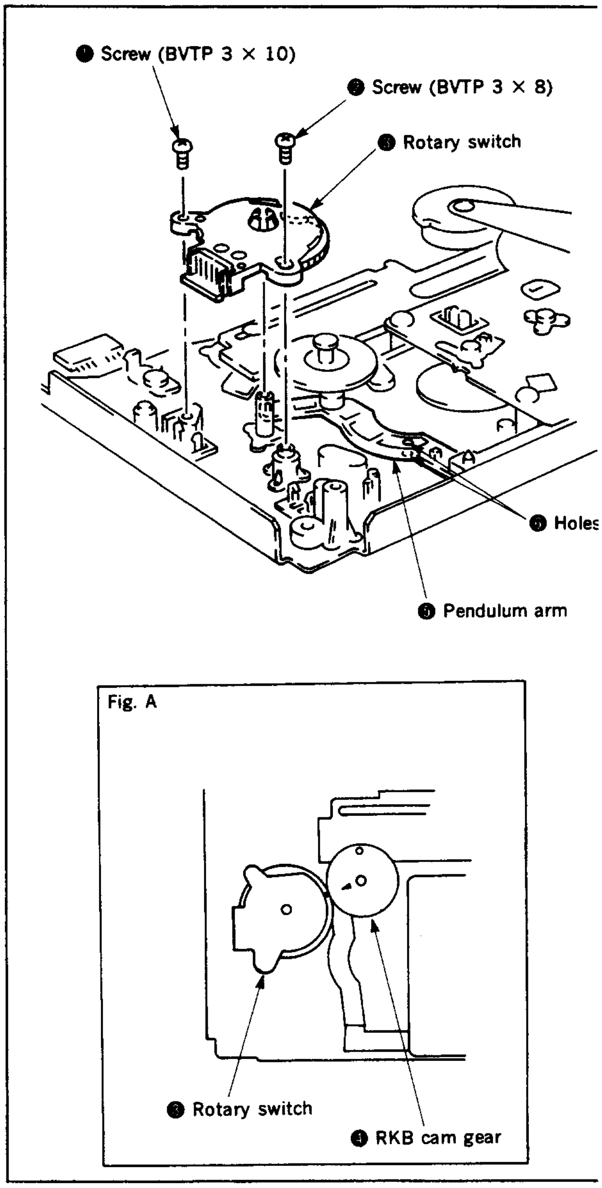

❶ Screw (BVTP 3 × 10)
❷ Screw (BVTP 3 × 8)
❸ Rotary switch
❺ Holes
❻ Pendulum arm
Fig. A
❸ Rotary switch
❹ RKB cam gear

Fig. 3-30.

3-25. RKB CAM GEAR (Fig. 3-31)

1) Remove the adjuster arm ass'y. (Refer to 3-22.)
2) Remove washer 2 ①, then pull out the RKB cam gear ②.

[Precautions on remounting]

- When the limiter arm ③ is pushed in the direction of the arrow, the pin must fit into the notch on the RKB cam gear ②.
- The ■ mark on rotary switch ⑤ must match up with the ◀ mark on the RKB cam gear ② as shown in Fig. A.
- Apply 1/2 drop of lubricant to shaft ⑥.
- Match up the holes ④ on the RKB cam gear ② and the mode slide plate.

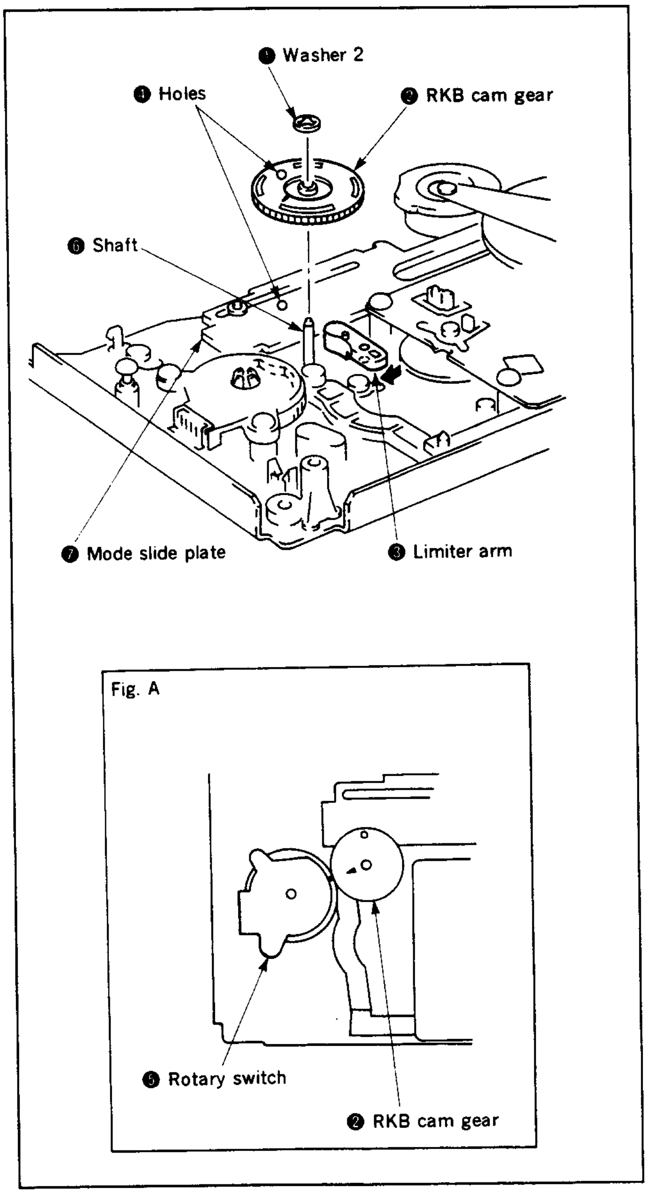

① Washer 2
④ Holes
② RKB cam gear
⑥ Shaft
⑦ Mode slide plate
③ Limiter arm
Fig. A
⑤ Rotary switch
② RKB cam gear

Fig. 3-31.

3-26. SUB-CHASSIS ASS'Y (Fig. 3-32)

1) Remove the reel lock release arm and REW gear. (Refer to 3-15.)
2) Remove the pendulum arm ass'y. (Refer to 3-19.)
3) Remove the adjuster arm ass'y. (Refer to 3-22.)
4) Remove the three screws ①, then remove sub-chassis ass'y ②.

[Precautions on remounting]

- The switching arm ③ must be switched in the direction of the arrow.
- The screws must be fastened in order of a, b and c.
- Mount the sub-chassis carefully so as not to damage the gear.
- The corner edge of the lug terminal ④ must fit into the gap between the chassis ass'y ② and mechanism chassis.

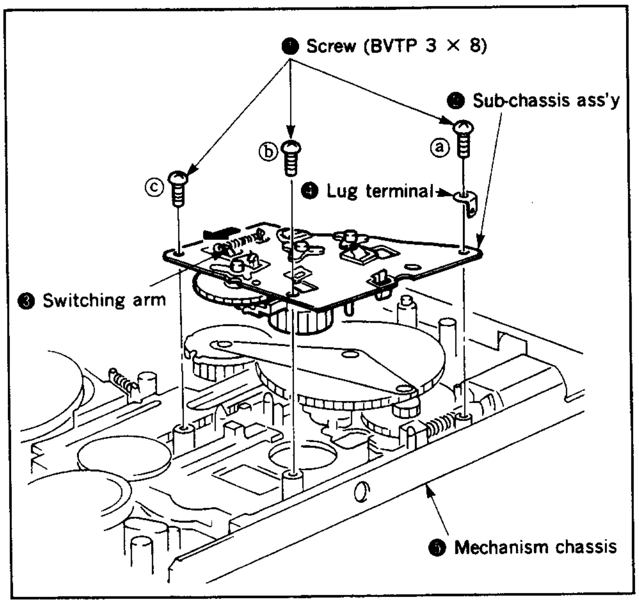

① Screw (BVTP 3 × 8)
② Sub-chassis ass'y
ⓑ
ⓐ
ⓒ
④ Lug terminal
③ Switching arm
⑤ Mechanism chassis

Fig. 3-32.

3-27. PENDULUM SLIDE PLATE, PENDULUM ARM (Fig. 3-33)

1) Remove the rotary switch. (Refer to 3-24.)
2) Remove the RKB cam gear. (Refer to 3-25.)
3) Remove the sub-chassis ass'y. (Refer to 3-26.)
4) Disengage the two claws ❶, then pull out the pendulum slide plate ❷.
5) Unhook the spring ❸.
6) Disengage the claw ❹, then pull out pendulum arm ❺.

[Precautions on remounting]

○ The shaft ❻ must fit into hole ❼.

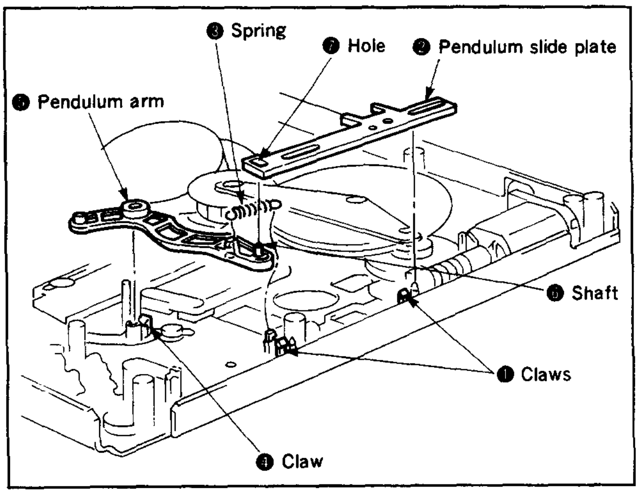

❸ Spring
❼ Hole
❷ Pendulum slide plate
❺ Pendulum arm
❻ Shaft
❶ Claws
❹ Claw

Fig. 3-33.

3-28. THE LIMITER ARM AND LIMITER SLIDE PLATE (Fig, 3-24)

1) Remove the RKB cam gear. (Refer to 3-25.)
2) Remove the sub-chassis. (Refer to Fig. 3-26.)
3) Disengage the claw ❶, then pull out the limiter arm ❷.
4) Disengage the two claws ❸, then pull out the limiter slide plate ❹.

[Precautions on remounting]

○ The shaft ❺ must fit into the hole ❻.

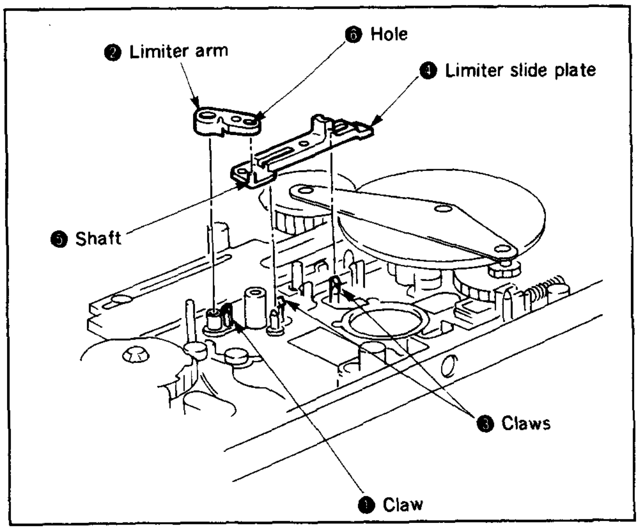

❻ Hole
❷ Limiter arm
❹ Limiter slide plate
❺ Shaft
❸ Claws
❶ Claw

Fig. 3-34.

3-29. CAM MOTOR (Fig. 3-35)

1) Remove the sub- chassis ass'y. (Refer to 3-26.)
2) Disengage the six claws ❶, then remove the cam mc ❷ and worm gear ❸.

[Precautions on remounting]

○ Check the meshing of cam motor ❷ and worm gear

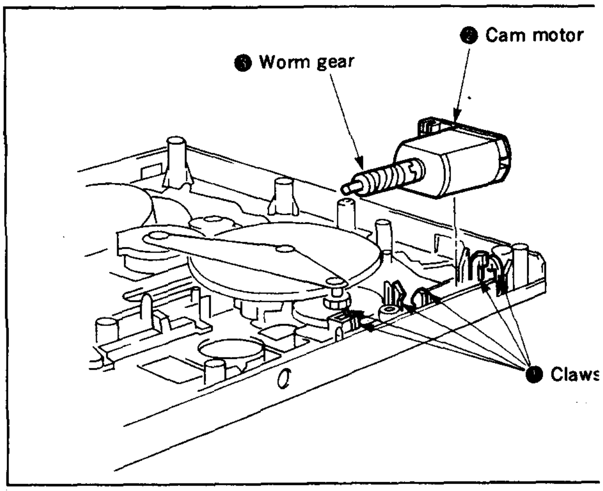

❷ Cam motor
❸ Worm gear
❶ Claws

Fig. 3-35.

3-30. CAM GEAR (Fig. 3-36)

1) Remove the three washers 2 ❶, then pull out the c gear holder ❷.
2) Pull out the cam gear ❸.

[Precautions on remounting]

○ Match up the right loading gear ass'y, the tension regı tor arm, the S take-up arm, the work wheel, the brake a and the mode slide plate with respective holes ❹ to ❾ the chassis in that order.

○ Match up the hole ❿ on the mode slide plate with the h ❿ in cam gear ❸.

○ Apply 1/2 drop of lubricant to the shaft ⓫.

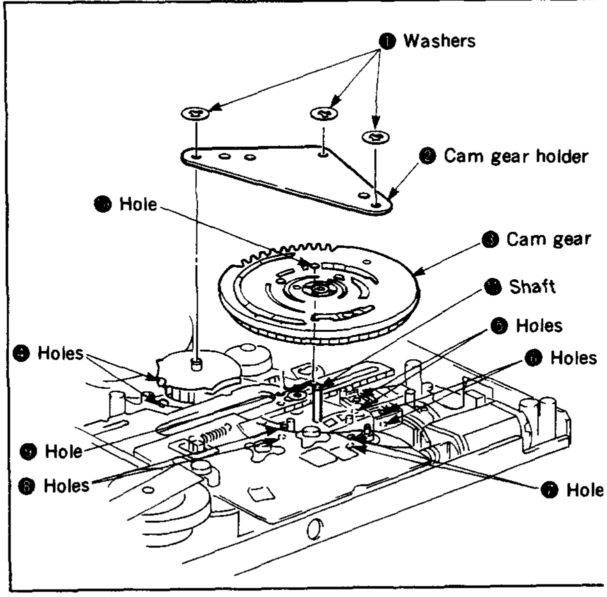

❶ Washers
❷ Cam gear holder
❿ Hole
❸ Cam gear
⓫ Shaft
❹ Holes
❺ Holes
❻ Holes
❾ Hole
❽ Holes
❼ Hole

Fig. 3-36.

3-31. TENSION REGULATOR ARM, S TAKE-UP ARM (Fig. 3-37)

1) Remove the cam gear. (Refer to 3-30)
2) Disengage the claw ❶, then remove the tension regulator arm ❷.
3) Remove the end of the spring ❸ from the S take-up arm ❹.
4) Disengage the claw ❺, then pull out S take-up arm ❹.

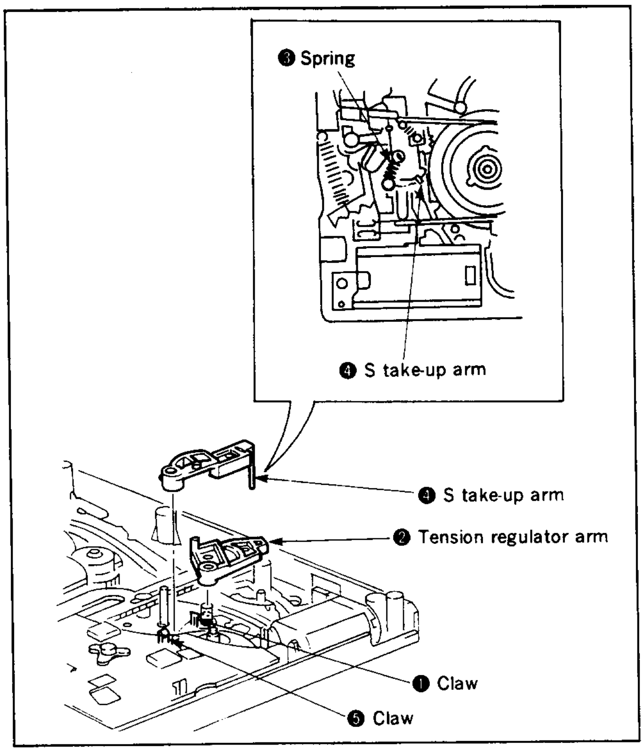

❸ Spring
❹ S take-up arm
❹ S take-up arm
❷ Tension regulator arm
❶ Claw
❺ Claw

Fig. 3-37.

3-32. MODE SLIDE PLATE, RVS RELAY GEAR (Fig. 3-38)

1) Remove the RKB cam gear. (Refer to 3-25.)
2) Remove the cam gear. (Refer to 3-30.)
3) Remove the two washers 2 ❶.
4) Turn the CAP brake ❷ in the direction of the arrow, then pull out mode slide plate ❸.
5) Pull out the RVS relay gear ❹.

[Precautions on remounting]

- ○ Match up the hole ❺ on the RVS relay gear ❹ with hole ❺ in the chassis.
- ○ Match up the holes ❻ on the mode slide plate ❸ with holes ❻ in the chassis.
- ○ Apply 1/2 drop of lubricant to the shaft ❼.

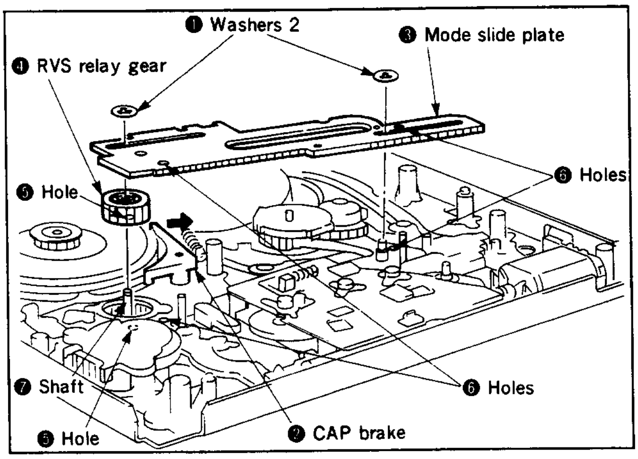

❶ Washers 2
❸ Mode slide plate
❹ RVS relay gear
❻ Holes
❺ Hole
❼ Shaft
❻ Holes
❺ Hole
❷ CAP brake

Fig. 3-38.

3-33. BRAKE ARM, BRAKE SLIDE PLATE (Fig. 3-39)

1) Remove the sub-chassis. (Refer to 3-26.)
2) Remove the cam gear. (Refer to 3-30.)
3) Disengage the claw ❶, then pull out the brake arm ❷.
4) Disengage the two claws ❸, then pull out the brake slide plate ❹.

[Precautions on remounting]

- ○ Insert the shaft ❺ into hole ❻.

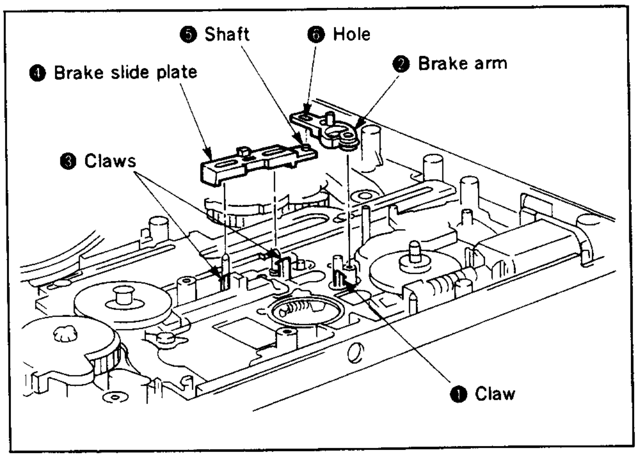

❺ Shaft
❻ Hole
❹ Brake slide plate
❷ Brake arm
❸ Claws
❶ Claw

Fig. 3-39.

3-34. RIGHT SHUTTLE, RIGHT LOADING GEAR ASSY'S (Fig. 3-40)

1) Remove the mode slide plate. (Refer to 3-32.)
2) Remove the plastic slider ❶, then pull out the right shuttle ass'y ❷.
3) Pull out the right loading gear ass'y ❸.

[Precautions on remounting]

○ Match up the ▲ mark on the right loading gear ass'y ❸ with the ▲ mark on the left loading gear ass'y ❹ as shown in Fig. A below.

○ Apply 1/2 drop of lubricant to the shaft ❺.

○ Do not hold on to the arm when pressing on the right loading gear ❸.

○ Clean the section of the right shuttle ass'y ❷ where the tape is attached.

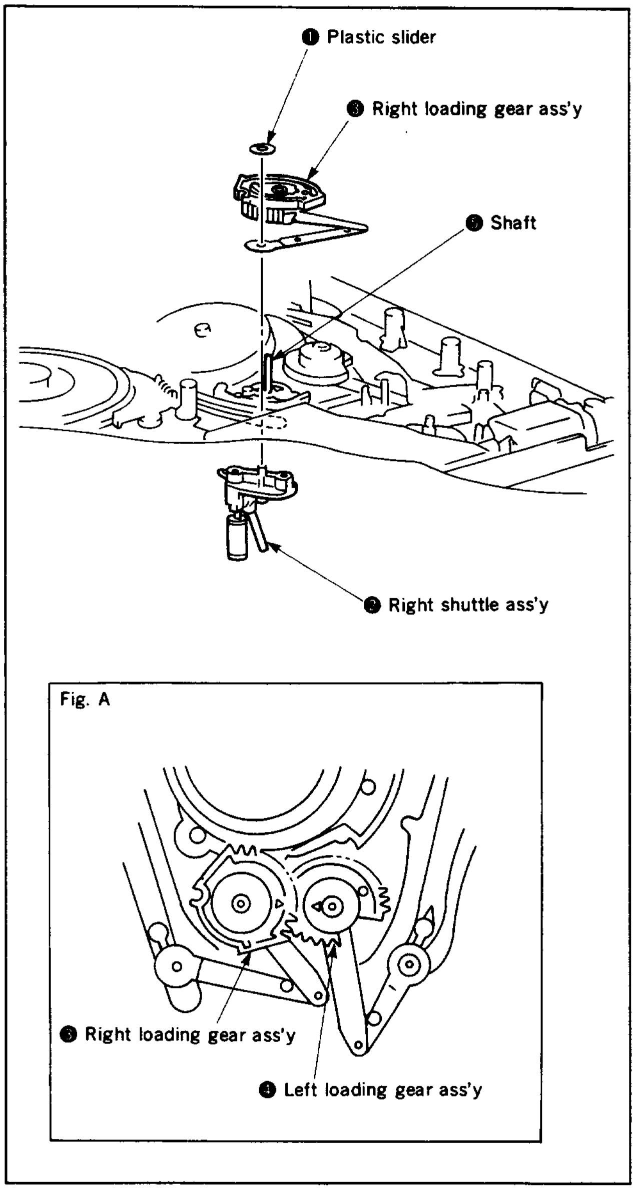

❶ Plastic slider
❸ Right loading gear ass'y
❺ Shaft
❷ Right shuttle ass'y
Fig. A
❸ Right loading gear ass'y
❹ Left loading gear ass'y

Fig. 3-40.

3-35. LEFT SHUTTLE ASS'Y, LEFT LOADING GEAR ASS'Y (Fig. 3-41)

1) Remove the right shuttle ass'y and right loading ge ass'y. (Refer to 3-34.)
2) Remove the plastic slider ❶, then pull out the left shut ass'y ❷.
3) Remove washer 2 ❸, then pull out the left loading ge ass'y ❹.

[Precautions on remounting]

○ Apply 1/2 drop of lubricant to shaft ❺.

○ The tension regulator arm ass'y ❻ and left shuttle ass'y must be positioned as shown in Fig. A below.

○ Do not hold on to the arm of the left loading gear ass'y when the left loading gear ass'y ❹ is pressed.

○ Clean the section of the felt shuttle ass'y ❷ where the ta is attached.

[Adjustments after replacement]

○ Perform tape path adjustments as described in 4-1.

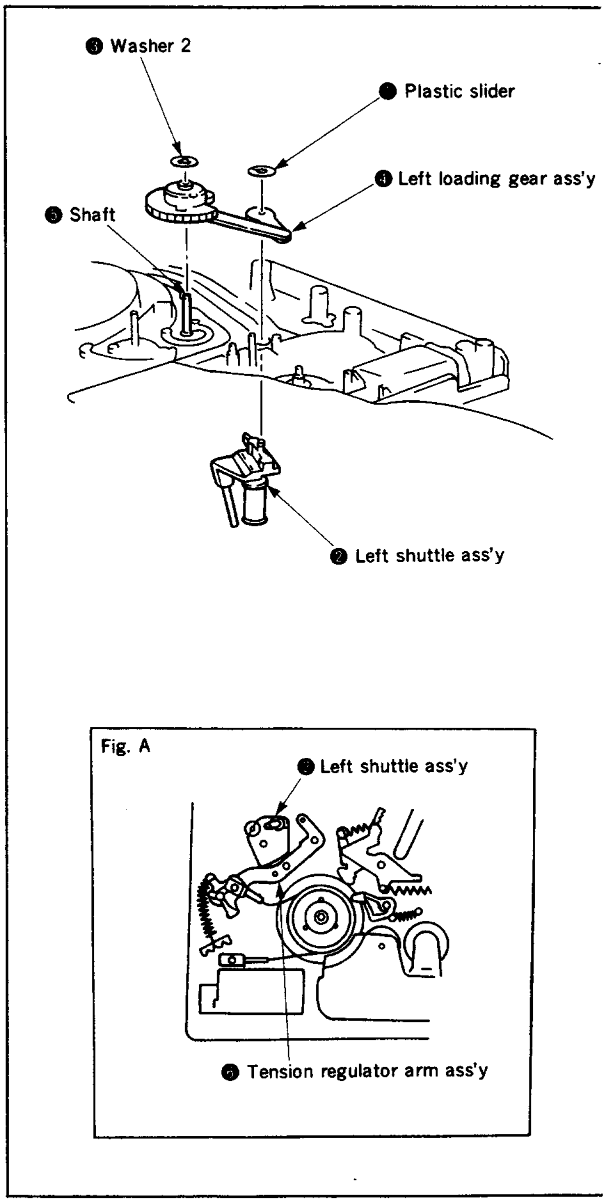

❸ Washer 2
❶ Plastic slider
❹ Left loading gear ass'y
❺ Shaft
❷ Left shuttle ass'y
Fig. A
❷ Left shuttle ass'y
❻ Tension regulator arm ass'y

Fig. 3-41.

3-36. C-ROLLER ARM ASS'Y, C-ROLLER RELEASE LEVER (Fig. 3-42)

1) Disengage the claw ❶, then pull out the C-roller arm ass'y ❷.
2) Unhook the end of the spring ❸ from the chassis.
3) Disengage the two claws ❹, then pull out the C-roller release lever ❺.

[Precautions on remounting]

- Mount C-roller arm ass'y ❷ so that the hole ❻ on the C-roller arm ass'y ❷ fits into the boss ❼ on the C-roller release lever ❺.

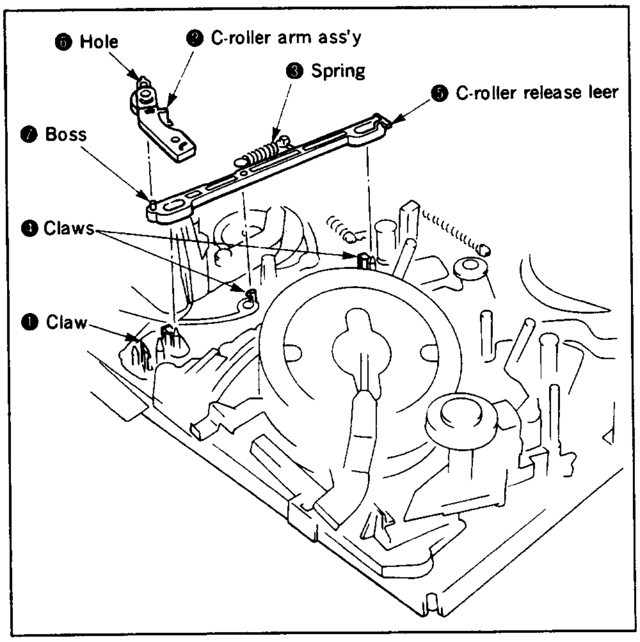

❻ Hole
❷ C-roller arm ass'y
❸ Spring
❺ C-roller release leer
❼ Boss
❹ Claws
❶ Claw

Fig. 3-42.

4. ADJUSTMENT

4-1. TAPE PATH ADJUSTMENT

The "Tape path" refers to the route of the tape from the supply reel disk to the take-up reel disc via the video heads. Each component part of the tape transport system, particularly the surface of parts which make direct contact with the tape must always be kept clean, free of dust, oil, scratches and so forth.

The tape path system is factory preadjusted. when parts of the tape transport system are replaced, be sure to make the required adjustments as precisely as possible in order to ensure stable tape transport.

4-1-1. Tension regulator position/tension adjustment (Fig. 4-1.)

Purpose : Stabilizes contact of the video head and the tape to maintain the tension of the tape so that it feeds at a constant level.

- **Position adjustment**

Mode	Threading is completed without a cassette loaded. (Refer to section 1-2.)
Adjustment locations	Tension band holder

[Adjustment method]

1) Allow the unit to go through the threading procedure without a cassette loaded.
2) Set the VTR unit to playback, then turn the tension band adjuster lever so that the gap between guide No. 0 and tension arm is within 4.5±0.4mm. *(Set the unit to playback without a cassette loaded.)
3) After adjustment, go through the loading procedure once more without a cassette loaded, then check the position of the tension arm.

- **Tension adjustment**

Mode	Playback
Measuring instrument/tool	Torque cassette
Adjustment locations	Position for hooking the tension sprin
Specification	28 to 34 g•cm

[Adjustment method]

1) Playback the torque cassette.
2) Check that the center value deviation reading on torque cassette meets with the standards.
3) When the reading is higher than the standards: M the spring toward direction Ⓐ.
When the reading is less than the standards: Move spring toward direction Ⓑ.

Note : Move the spring to the tension spring hook posit and recheck the tension arm position. If the position is misaligned, adjust the position and tens of the tension arm.

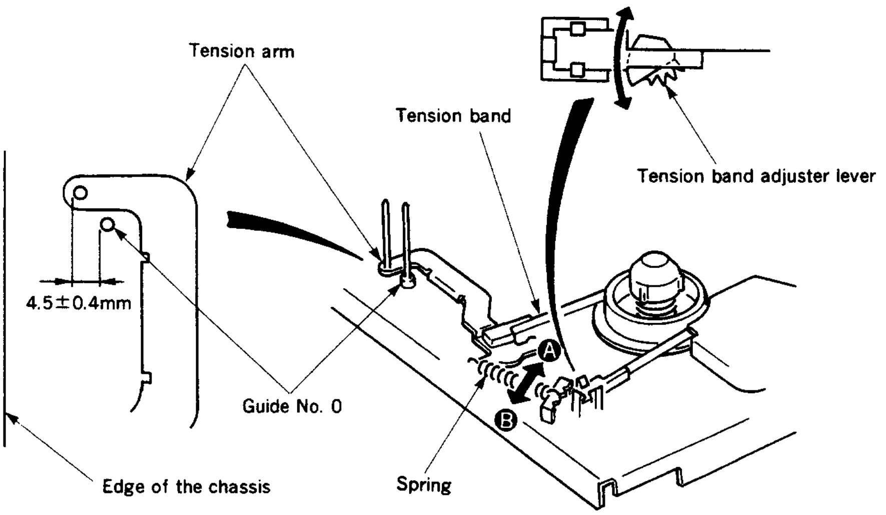


Fig. 4-1.

4-1-2. Height adjustment of the guide roller No. 2 (Fig. 4-2)

Mode	Playback
Tool	Blank tape
Adjustment locations	Guide roller height adjuster screw

[Adjustment method]

1) Load a new tape in the unit, then play it back.
2) Make sure that the lower flange of guide roller No. 2 does not curl up.
3) When the tape curls up: Turn the guide roller adjuster screw clockwise.
   When the tape does not fit into the lower flange: Turn the guide roller adjuster screw counter-clockwise.
4) After the above check, separate the tension arm from the tape, then re-attach it slowly. At this time, check if the tape curls up at the lower flange of the guide roller No. 2 and if the curl disappears within 2 seconds.
5) If curl does not disappear in two seconds: Turn the adjuster screw clockwise.
   If the tape does not curl up: Turn the adjuster screw counter-clockwise.

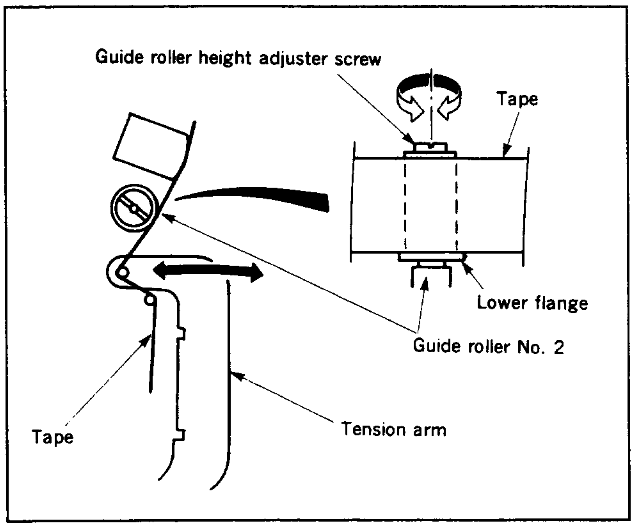


Fig. 4-2.

4-1-3. Height adjustment of guide roller No. 7 and the RVS arm (Fig. 4-3.)

Mode	Playback
Tool	Blank tape
Adjustment locations	Height adjuster nut

[Adjustment method]

1) Load the tape into the VTR and play it back, then adjust the height of the guide roller No. 7 so that the tape runs along the lower flange of guide roller No. 7.
2) If the guide roller is too low: Turn the height adjuster nut counter-clockwise.
   If the guide roller is too high: Turn the height adjuster nut clockwise.
3) Run the tape in REV, then adjust the height of the RVS arm so that the tape runs along guide roller No. 7.
4) If the tape gets caught in the upper flange of guide roller No. 7: Turn the RVS arm height adjuster nut clockwise.
5) If the tape catches on the lower flange of guide roller No. 7 : Turn the RVS arm height adjuster nut counter-clockwise.

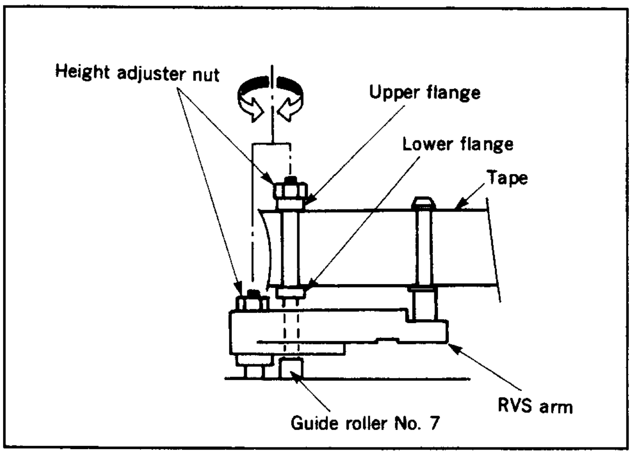


Fig. 4-3.

4-1-4. Height adjustment of guide rollers No. 3 and No. 6 (Fig. 4-4)

Mode	Playback
Signal	Hi-Fi alignment tape (Hi-Fi 400Hz)
Measuring instrument	Oscilloscope
Measuring point	CH-1 : Connector PB RF pin for RF PC board check. CH-2 : Connector RF SW P pin for RF PC board check.
Adjustment locations	Guide roller height adjuster screw.

[Adjustment method]

1) Tracking (playback): Turn off the auto tracking, then press the tracking buttons ▽ and △ simultaneously to set the tracking at the center position.
   (If adjustment is made after the drum is replaced, the tracking must be set at the max. Rf output position.)
2) Height adjuster screw: Even out the RF output waveforms.
3) Press the tracking buttons (playback), ▽ and △ alternately.
4) Check that RF output drops the same amount at the front and rear edges.

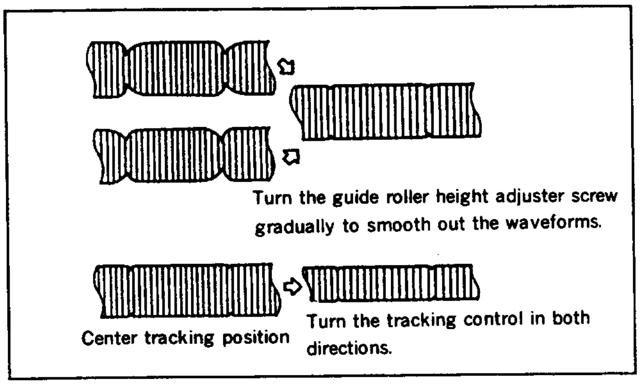

Turn the guide roller height adjuster screw gradually to smooth out the waveforms.
Center tracking position
Turn the tracking control in both directions.

Fig. 4-4.

4-1-5. ACE head ass'y adjustment (rough adjustment) (Figs. 4-5 and 4-6)

Purpose : Allows the tape to make even contact with t head for recording and playback of the specifi track.

Mode	Playback
Tool	Blank tape
Adjustment locations	Height adjuster nut, tilt adjuster screw

[Adjustment method]

1) Mount the ACE head ass'y. At this time, adjust the heig so that the height of guide flange No. 7 matches the le of the lower edge of the control head.
2) Remove the adjustment tool and load a new tape, then the unit for playback.
3) Check that the tape does not curl or raise up noticeal near the ACE head.
4) If the yape curls up or rarises noticeably, readjust the adjuster screw, the azimuth adjuster screw and the heig adjuster nut.
   (The height of the ACE head should be adjusted so th the lower edge of the tape is approx. 0.1 to 0.15 mm fr the control head.)
5) Perform precision adjustment.

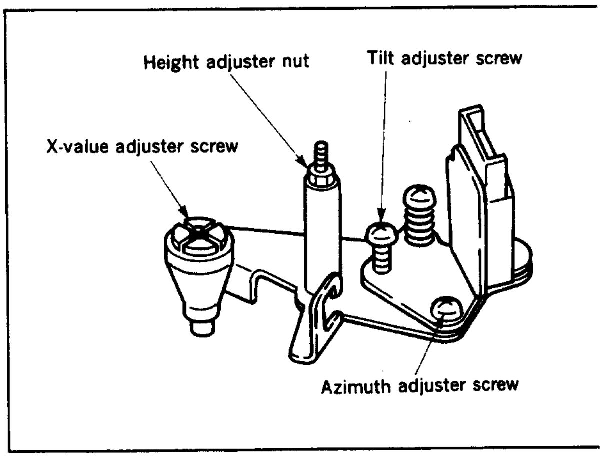

Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
Azimuth adjuster screw

Fig. 4-5.

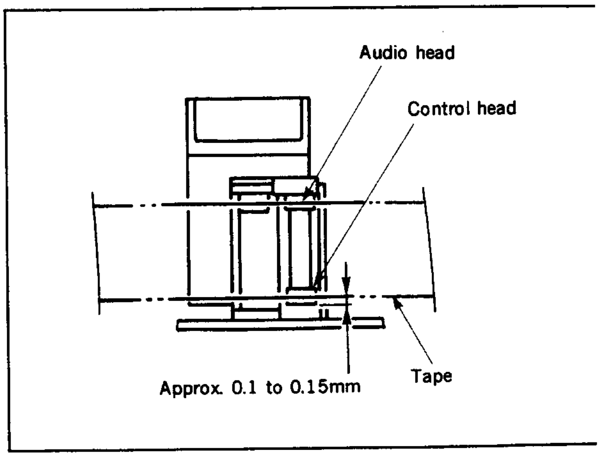

Audio head
Control head
Approx. 0.1 to 0.15mm
Tape

Fig. 4-6.

4-1-6. ACE head assembly adjustment (precision adjustment)

Mode	Playback
Signal	Alignment tape (JVC-MH-1 1KHz)
Measuring instrument	Oscilloscope
Measuring point	Audio output terminal
Adjustment locations	Azimuth adjuster screw Height adjuster nut Tilt adjuster screw

[Adjustment method]

1) Adjust the tilt adjuster screw in the FWD or REV mode so that the lower flange of guide No. 7 does not curl up or raise.
2) Alternately adjust the azimuth adjuster screw, the height adjuster nut, and the tilt adjuster screw to maintain even audio output at maximum with minimum deviation.

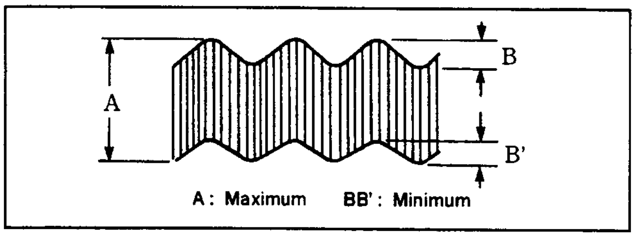

A
B
B'
A: Maximum BB': Minimum

Fig. 4-7.

4-1-7. X-value adjustment

Purpose: To obtain compatibility with other VTR.

Precaution: Be sure to perform the preset tracking adjustment before perform this adjustment. (Refer to the Service Guide.)
Turn off the auto tracking and set the VTR for manual tracking mode.

Mode	Playbadk
Signal	Hi-Fi alignment tape (Hi-Fi 400Hz), alignment tape (JVC-MH-1)
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check. (Check with the CHA head)
Adjustment locations	X-value adjuster screw

[Adjustment method]

- **Adjustment by Hi-Fi alignment tape**

  When the tracking is set at the center position (by pressing the ▽ and △ keys simultaneously), adjust the RF output to maximum.

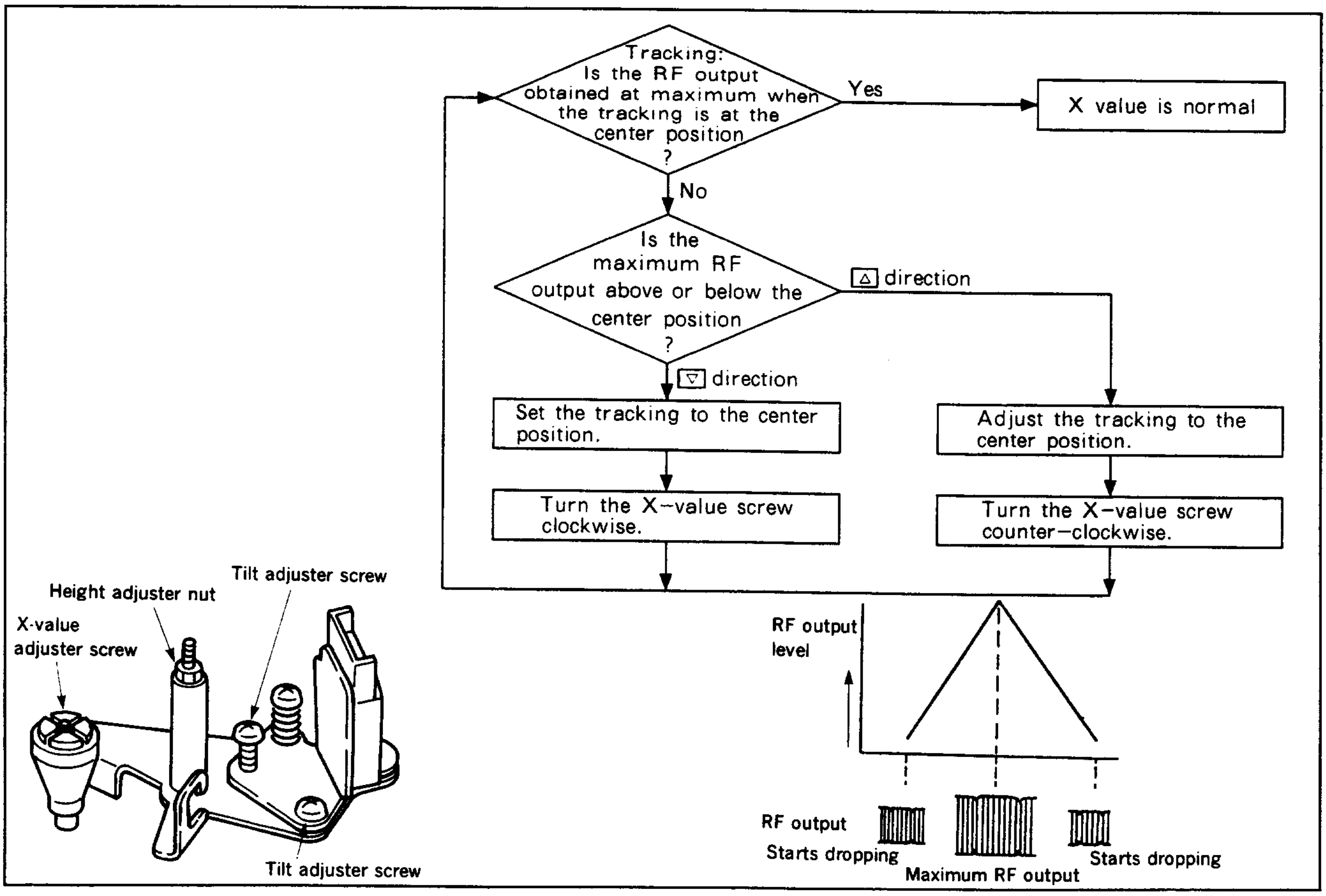

Tracking: Is the RF output obtained at maximum when the tracking is at the center position ?
Yes
X value is normal
No
Is the maximum RF output above or below the center position ?
△ direction
▽ direction
Set the tracking to the center position.
Turn the X-value screw clockwise.
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
Tilt adjuster screw
RF output level
RF output
Starts dropping
Maximum RF output
Starts dropping

Fig. 4-8.

- **Adjustment by Alignment tape (JVC-MH-1)**
  Adjust the X-value adjuster screw so that maximum RF output is obtained and also that the RF output drops the same position on pressing the respective ▽ and | buttons while the tracking is set at the center positio

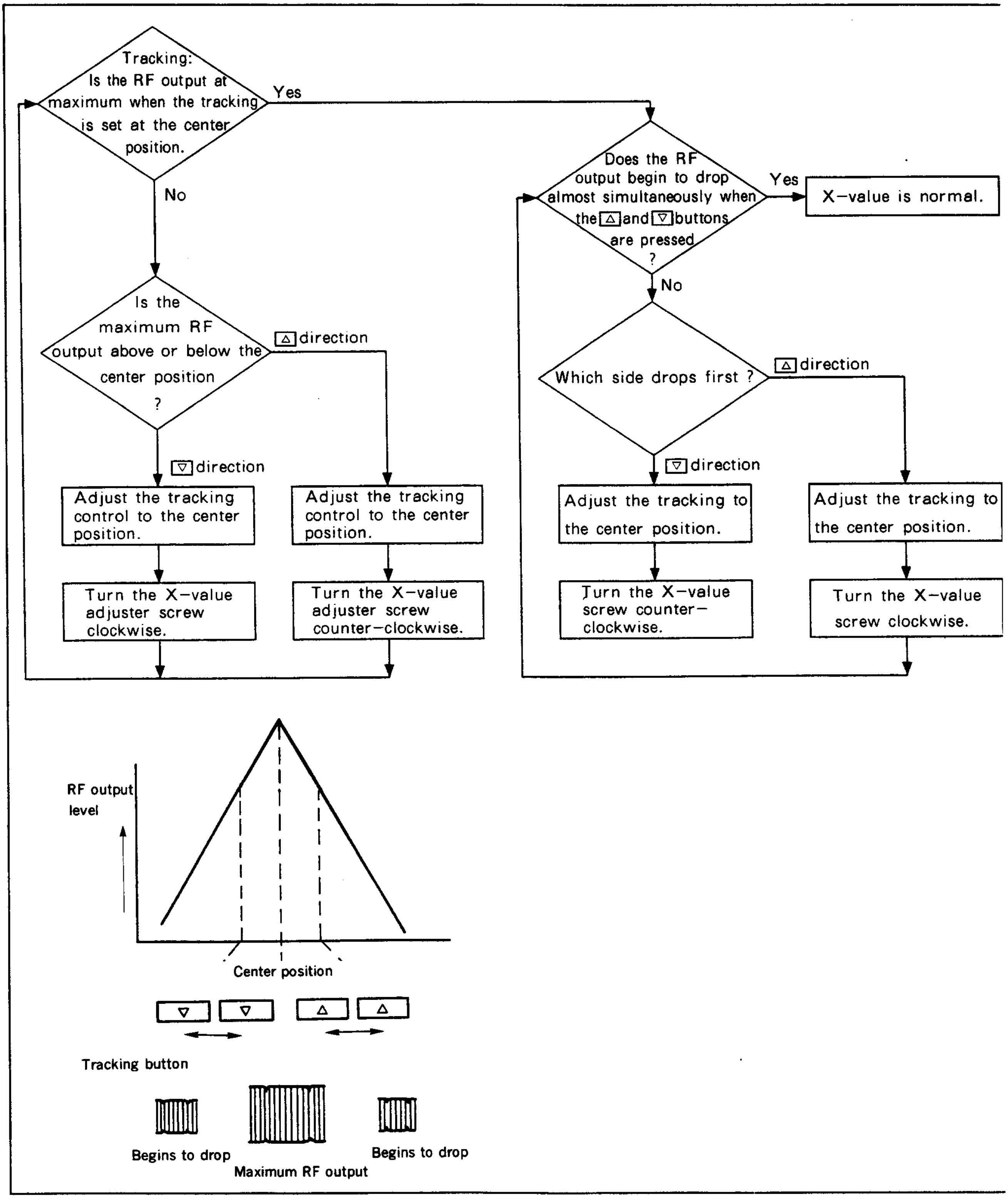
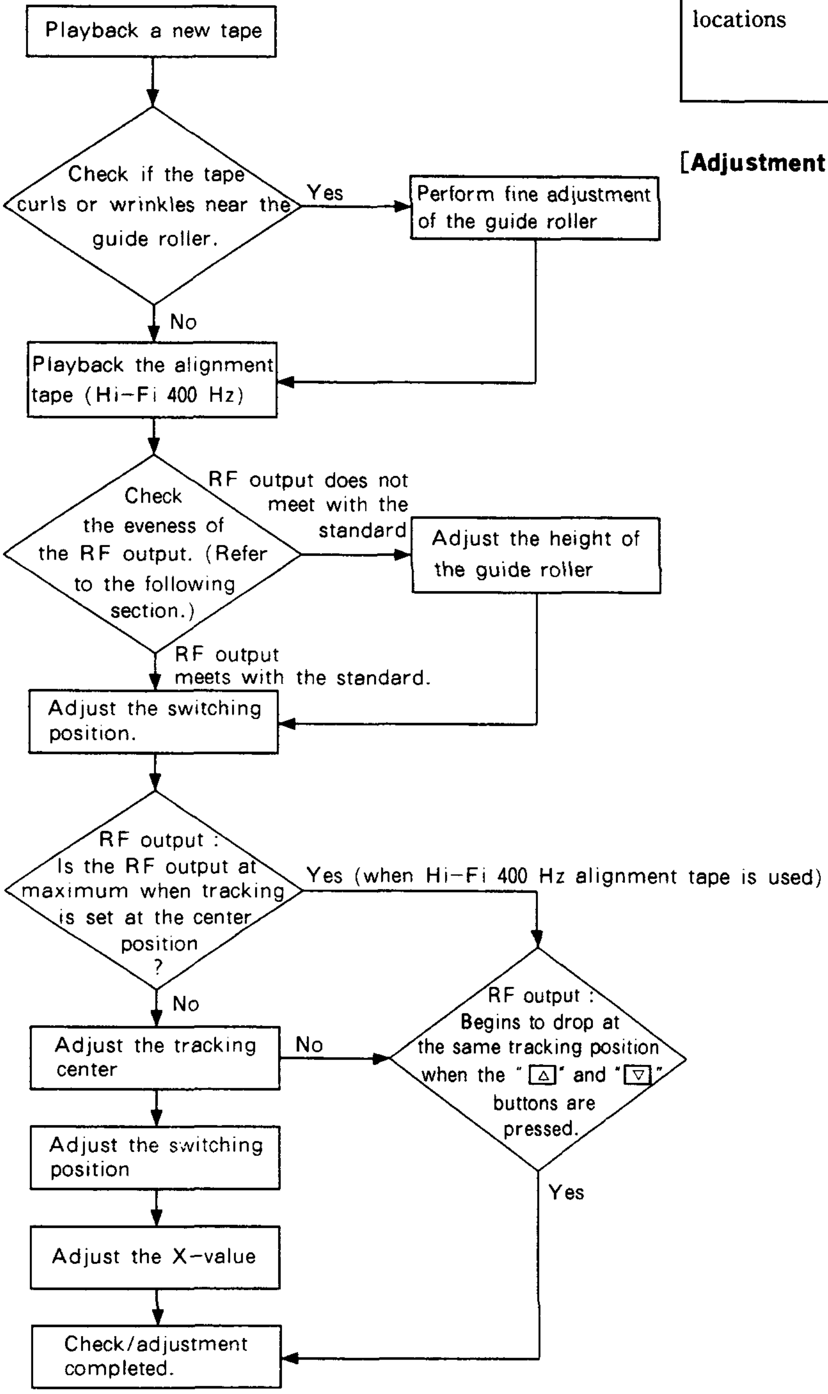

Tracking: Is the RF output at maximum when the tracking is set at the center position.
Yes
No
Is the maximum RF output above or below the center position ?
△ direction
▽ direction
Adjust the tracking control to the center position.
Turn the X-value adjuster screw clockwise.
Adjust the tracking control to the center position.
Turn the X-value adjuster screw counter-clockwise.
Does the RF output begin to drop almost simultaneously when the △ and ▽ buttons are pressed ?
Yes
X-value is normal.
No
Which side drops first ?
△ direction
▽ direction
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Adjust the tracking to the center position.
Turn the X-value screw clockwise.
RF output level
Center position
▽
▽
△
△
Tracking button
Begins to drop
Maximum RF output
Begins to drop

Fig. 4-9.

4-1-8. Adjustments after replacing the drum (video head)

Purpose : Co-relative height, X-value and other factors of the drum will deviate from those of the guide roller. If the drum is replaced properly, these deviations are extremely small.

Precaution : Turn off the auto tracking and set the manual tracking mode.

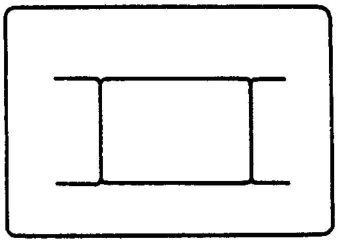

Playback a new tape
Check if the tape curls or wrinkles near the guide roller.
Yes
Perform fine adjustment of the guide roller
No
Playback the alignment tape (Hi-Fi 400 Hz)
Check the eveness of the RF output. (Refer to the following section.)
RF output does not meet with the standard
Adjust the height of the guide roller
RF output meets with the standard.
Adjust the switching position.
RF output : Is the RF output at maximum when tracking is set at the center position ?
Yes (when Hi-Fi 400 Hz alignment tape is used)
No
Adjust the tracking center
No
RF output : Begins to drop at the same tracking position when the "△" and "▽" buttons are pressed.
Yes
Adjust the switching position
Adjust the X-value
Check/adjustment completed.

Mode	Playback
Signal	Alignment tape (JVC-MH-1), blank tape
Measuring instrument	Oscilloscope
Measuring point	CH-1 : Connector PB RF pin for RF PC board check. CH-2 : Connector RF SW P pin for RF PC board check.
Adjustment locations	Guide roller (refer to 4-1-5.) Switching position, Tracking preset, SP delay mono-multi, X-value (refer to 4-1-8) } (Refer to the Service Guide)

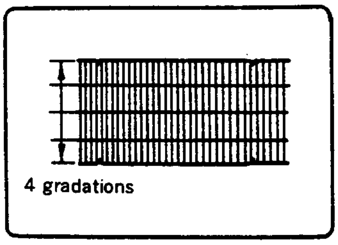
[Adjustment method]

[Checking the eveness and fluctuation of the RF output]

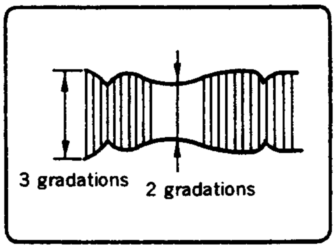
1) Set the RF output to the maximum level using the tracking buttons.



2) Perform fine adjustment of the voltage level range of the oscilloscope, then adjust the RF output deviation to within 4 gradations.



3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 3 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.



5) Check that the RF output fluctuation between minimum and maximum levels is within 13%.

4-1-9. Checking the tension and torque

Purpose: To check that the tension, torque and compression force of the tape take-up section and mobile sections to ensure smooth tape run and achieve standard VTR performance.

If the tape transport is not smooth or problems occur in relation to the tape transport speed, perform the following check.

Mode	Each operation mode without loading a cassette tape. (Refer to section 1-3.)
Measuring instrument	Torque gauge, Torque gauge adapter

Item	VTR operation mode	Reel to be measured	Measurement value
Main brake torque	Stop	Supply and take-up reels	170g•cm or more
Review torque	Review	Supply reel	180±30g•cm (using the torque cassette)
Take-up torque	Playback	Take-up reel	80 to 140g•cm (using torque cassette)
Back tension torque	Rewind	Take-up reel	4 to 25 g•cm

[Check method]

Measure the torque using the torque gauge and torque gauge adaptor with the torque gauge fixed.

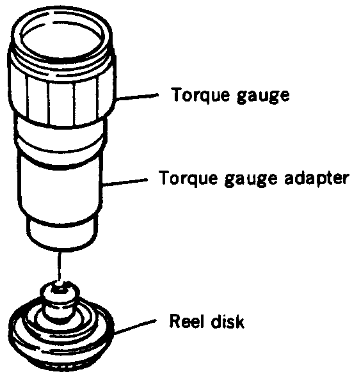


Fig. 4-13.